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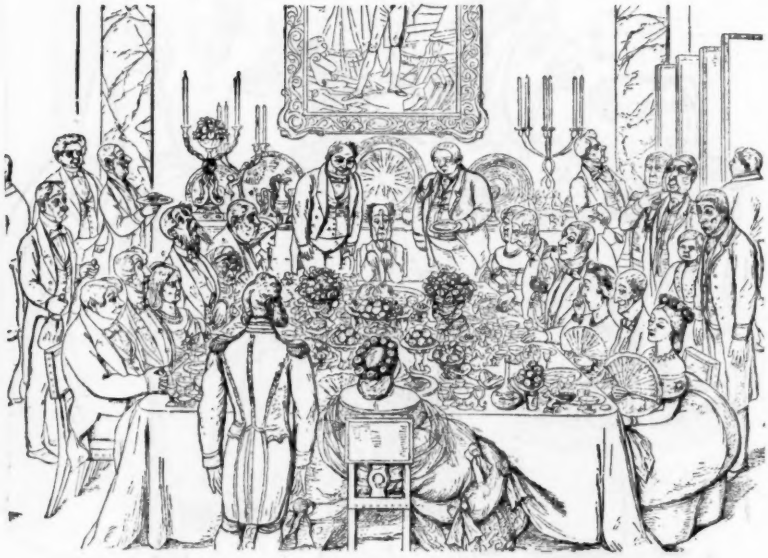

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MEDICINE IN THE NEW SOCIAL ORDER*

SIR FRANCIS FRASER
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DIRECTOR OF THE BRITISH POSTGRADUATE MEDICAL FEDERATION

THE community, be it represented by central government, local authority, professional association, or trade union, is now taking responsibility for many activities that were previously left to individual initiative. People are no longer as free as they were to decide the way they live and the contribution which each makes to the group or to the nation. They must submit to controls. The life of the individual has, of course, always been controlled, to an extent which has varied greatly at different times and in different places; but the extent of the control to which all in this country are now subjected is a new feature of the post-war years. This we can see already is producing changes in the personal relations of the individual to other individuals with whom he comes in contact, to the other members of his group, of his family, of his professional colleagues, of the team in which he works, and among his neighbours.

There have, of course, always been problems in human relations, individual and communal. It is the rate of change in the conditions of life today that make us so conscious of them. In the past, human relations and the personal difficulties and dilemmas to which they give rise have been solved with varying success, usually by the individual himself, often by members of the learned professions. Long before social sciences were thought of or the phrase human relations was accepted, the parson, the lawyer, and the doctor were practising an art for which we now seek scientific support. Today the universities are encouraging the development of the social sciences and giving a lead in their endeavour to train their graduates, the leading citizens of the future, to realise and tackle the difficulties. Surely then there is good reason for the learned professions, and medicine in particular, to consider their responsibilities and, if necessary, to amend their education to meet the calls which the community will make on their service.

In his *Short History of Medicine*, published in 1928, Dr. Charles Singer says:

> "When we glance at the tasks now performed by the medical man, we cannot fail to be struck by the great increase in the number of things that have come to be regarded as within his sphere. It is a commonplace that he has in large part taken the place of the parson. But he has also made encroachments on the functions of the lawyer, the legislator and the judge, of the schoolmaster, the architect, and the statistician. He has assumed some of the duties of the parent and guardian, while even the soldier and the policeman are to some extent under his control. In the ordering of their lives, and even in the regulation of their vices and the reform of their shortcomings, men and women are far more willing to seek the advice and help of the medical man than once they were. The reason is, without doubt, that his advice is much more worth having than ever it was."

In the exercise of his profession the medical man gains knowledge which he uses to good effect and so is able to advise and guide the people in the numerous ways recorded by Dr. Singer and many other ways besides. His professional education has not been designed to make him expert in these matters but it has had great value in the formation of character, the development of moral and cultural standards and ideals, and it is on the basis of these that he has come to occupy his place in modern society.

At the Congress of Universities of the Commonwealth held last July at Oxford, Prof. Boyce Gibson of Melbourne, discussing the social changes produced by the advances in science and technology, said:

> "The oldest of the technical studies, medicine, is intrinsically linked to the humane tradition; its purpose is the relief of suffering and the promotion of vital activity; success in its practice depends on the mastery of human personal relations; and its latest extension, psychiatry, requires, besides analytical competence, a compassionate insight into the human soul."

HEALTH IN THE NEW SOCIAL ORDER

We hear much nowadays of the right of everyone to a minimum standard of living, to food and housing, education, employment, care in old age and health. And by health is meant not merely treatment in sickness and the prevention of disease, but also the active promotion of health. In the *South African Medical Journal* of July 10 Prof. J. F. Brock, of Cape Town, distinguishes three factors affecting all diseases—inherited constitution, external agents (such as infection and trauma), and health-promoting factors. In the last group he puts food, exercise, sleep, warmth, air, cleanliness, education, and happiness. We have little exact knowledge of the influence on health of these latter—the intellectual and moral—factors, but evidence is steadily accumulating that the health of individuals is influenced by their happiness, even more perhaps than their happiness depends on their health.

This country can no longer afford to neglect any of its resources, and its greatest asset is the capacity of each member of the nation to contribute to the strength and efficiency of the whole, and this is governed largely by their health. Hence we may be sure that the advice of medical men will be sought in the coming years on many new matters affecting the health of communities and of individuals; and they should be well informed in order that their advice will be worth having. The list of things on which their help will be sought is almost inexhaustible, as it would include all aspects of life in a modern community. The most important factor of all, perhaps, and one on which advice is often needed, is the adjustment of human relations in order that any sense of injustice and frustration may be prevented or removed. In our complicated and controlled society this cause of unhappiness is becoming more frequent and its importance to health is coming to be appreciated more clearly as the natural history of disease is more widely studied.

THE CHALLENGE TO MEDICINE

There is evidence that the Government departments concerned with recent legislation and responsible for the numerous regulations and directions that have been issued for the administration of the new Acts are fully conscious that the people require guidance to enable them to adjust their lives to the new order. Large numbers of inspectors from the various ministries and departments, information bureaux, resettlement officers, health visitors, almoners, social workers, and so on, are being appointed to ease the difficulties of personal readjustment. Will they not suffice? Is there need for doctors also to concern themselves with these matters? I am confident that there is, for the responsibilities of each of these lay officials are highly specialised. Each will be expert in one aspect only of the life of an individual in relation to the community, one factor only in the health of the individual. But medicine has responsibility for the whole man—for his physical and his mental health, and for all the factors on which they depend.

The changes that are now taking place are the country's reaction to two world wars, to the exhaustion of its reserves, to the need for greater efficiency that it may retain its place among the nations. The medical profession is being challenged to play its part and make its peculiar contribution as the guardian of the people's

* From an address given to the Royal Medical Society in Edinburgh on Nov. 19, 1948.

health. The challenge is above all to the family doctor and general practitioner.

The past shows that it is to him that families and individuals turn for help and advice, and to him they will continue to turn. Lay officials cannot take his place. His position in society is one of special privilege and trust. He represents the community when he helps us into the world and when he certifies that all is seemly when we die. He shares all the major crises of our lives. His knowledge of curative medicine gives him access to the private and personal affairs of the people; his education and his culture bring him forward as a leader in his community; compassion and human sympathy are inseparable from his calling; and ideals of service are passed on to him by his elders and by the traditions of his profession. The health of each member of the community will depend on his guidance, and all will look to him for help and advice, so that in adapting their lives to changing conditions they may not only safeguard their health but also improve it.

At present the general practitioner is having a bad time. He has so much to do that he is in danger of losing that joy in work well done which is essential to happiness. This is, I believe, a passing phase, and I hope that before long he will be relieved of much of the certification and paper work of all kinds which could be done as well by others, with the development of health centres and group practice, he should be relieved to an increasing extent of his present almost intolerable burdens. It might well appear impracticable now to suggest that his responsibilities in the new social order will be increased, but altered, I have no doubt, they will be. His training and his intimate knowledge of individuals and families point to him as the counsellor best qualified to help the individual to adjust his life.

EDUCATION OF THE DOCTOR TOMORROW

The undergraduate curriculum is concerned primarily with the broad principles of medical science on which efficient practice can be built as experience and wisdom are acquired. It would, I am sure, be a mistake at present to alter it to any great extent. But the post-graduate years offer better opportunities for education in the new duties and responsibilities of the medical profession. Under the National Health Service Acts the different branches of medicine—general practice, hospital practice, and the public services—will be more closely linked and postgraduate education will be encouraged. The universities have undertaken to develop postgraduate medical education, and it should thus be possible to keep doctors abreast of the progress of knowledge. It is highly desirable that the plans for different parts of the country should vary. Not only do conditions vary, but the experience gained from originality and initiative in one area may be of value to others.

There is likely, however, to be a general pattern of postgraduate education throughout the country in which the specialist clinical staffs of regional hospitals will be kept in constant touch with teaching hospitals and medical schools, and the general practitioners will be kept in touch with the specialists by means of clinical assistantships, regular meetings for discussion, and periodic refresher courses at the regional hospitals and the teaching centres. Through the specialist domiciliary service the family doctor will meet the specialists in consultation. It will be the responsibility of the specialist to keep up to date his own knowledge not only of diagnosis and treatment but also of the preventive and health-promoting factors that affect his specialty, and to understand how the provisions of public administration can be used for the benefit of his patients; and he will take every opportunity to pass on this information to the family doctor. To these ends he must watch the results of research in the social science, and seek to apply them to the practice of medicine. But there will be a two-way traffic, for the family doctor, aware as no-one else can be of the problems of individuals and their empirical solutions, will point out where new knowledge is needed. The family doctor should also be given opportunities for discussion with those responsible for the health of communities, the medical officer of health, the industrial medical officer, the school medical officer, and the medical administrator.

The scheme outlined in a recent circular of the Ministry of Health for the training of assistants by selected general practitioners is welcome. It should enable the older practitioners to hand on to the coming generation something of their wisdom and experience—something which the undergraduate curriculum cannot provide and which no form of organised postgraduate instruction can give—and to enable the general practitioner of the future to start his career, if not where his predecessor leaves off, at least somewhere well in advance of where his predecessor began.

THE DOCTOR'S PLACE

Close coöperation of general practitioners, specialists, and medical officers of public bodies and other organisations is necessary nowadays if the people are to have the full benefit of the knowledge now available. As the friend and counsellor of individuals and of families, the clinician, and especially the general practitioner, will be called upon not only to care for them in sickness, guide them in convalescence, advise them on the preservation of their health, but also help them to improve it. To these ends the medical man of the future must take an increasingly important place in the new social order, helping each individual to adjust his life successfully to the rapidly changing conditions, for in this way only can the people be happy and healthy, and contribute in full measure to the well-being of the society to which they belong.

DEXTRAN AS A PLASMA SUBSTITUTE *

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IN 1943 Grönwall and Ingelman, in Sweden, suggested the use of dextran as a substitute for plasma. This colloid is free from the drawbacks of other colloids previously prepared as substitutes for plasma.

Clinical trials were made at the Central Hospital, Örebro, and later at the Serafimer Hospital, Stockholm, and after various tests and modifications the dextran now in use was produced. Brief reports of the results of subsequent clinical trials have been published by Grönwall and Ingelman (1944a and b, 1945a and b),

* From a paper read to the annual meeting of the Association of Surgeons of Great Britain and Ireland on May 6, 1948, in Edinburgh.

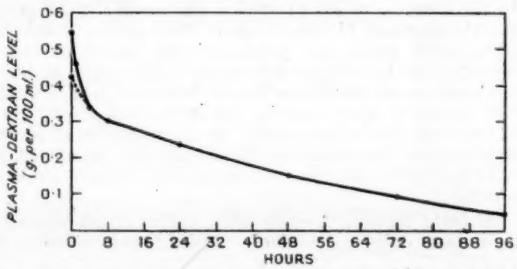

Fig. 1—Plasma-dextran level after infusion of 400 ml. of dextran Ph.

Bohmansson et al. (1946), and myself (Hint and Thorsén 1947, Thorsén 1948). In 1945 samples of Swedish dextran, produced on a semi-commercial basis, were sent to the Lister Institute. In 1946 samples of dried dextran were sent to prominent scientists in the United States for the preparation of solutions and testing.

The dextran now in use is 'Dextran Ph,' a proprietary preparation produced by the Swedish firm Pharmacia. It is a 6% solution of the polydispersoid glycose-polymer dextran, in which most of the molecules have been hydrolytically given a molecular weight conforming to that of albumin, with 0·9% of sodium chloride added to it. Its viscosity lies between that of blood and that of plasma, and its specific gravity somewhat exceeds that of human plasma. Dextran is virus-free, does not lead to the formation of antigens, and contains almost no nitrogen. Its thread-like molecules are electrically neutral and chemically indifferent.

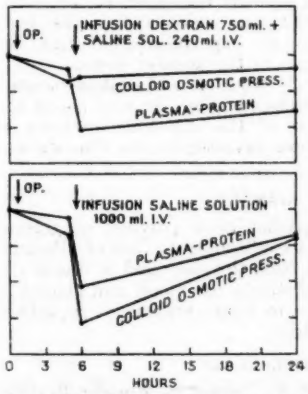

Fig. 2—Colloid osmotic pressure and plasma-protein levels after infusion of dextran Ph and physiological saline solution (above) and of saline solution alone (below).

Dextran has been given to 5000 patients, 20,000 units having been infused. In a few cases up to 4 litres has been given in a single infusion. The largest amount given to any one patient has been 10 litres. Dextran is non-toxic and does not injure the tissues either locally or systemically. The results obtained with it have been very good both in the treatment and in the prevention of shock. At the hospital dextran is used as a routine in the prevention of shock during major operations. A series of controls in which corresponding amounts of physiological saline solution were given had a higher incidence of postoperative complications. Rosenqvist (1947) reported dextran to be as good as plasma in shock from burns. In Sweden today the hospital transfusion services rely to a large extent on dextran for emergency cases. Its use has not been found to affect fertility, fœtal development, or growth.

PLASMA-DEXTRAN LEVELS AND EXCRETION

After an intravenous injection of 1–2 litres of dextran the plasma-dextran level rises to 1–2·5 g. per 100 ml. Next, after an initial fall due principally to elimination of a low-molecular fraction through the kidneys, the plasma-dextran level falls at an even rate (fig. 1).

During the initial renal excretions of low-molecular dextran the urine-dextran level may rise to 7 g. per 100 ml. without any sign of renal injury. During this time about a quarter of the dextran given is excreted, provided an ordinary amount has been infused. After that no dextran can be detected in the urine by polarimetry, even though the plasma-dextran level remains relatively high. The mean molecular weight in the dextran excreted in the urine has been calculated at 25,000. Dextran of a higher molecular weight is presumably metabolised.

After the initial fall the plasma-dextran level falls at an even rate, which is more rapid in small animals than in large ones; the rate increases with the simultaneous administration of thyroid hormone; and is also related to the amount of dextran given.

The elimination of dextran not excreted in the urine takes place at a rate that differs slightly in different species of animal, as calculated per kg. of body-weight

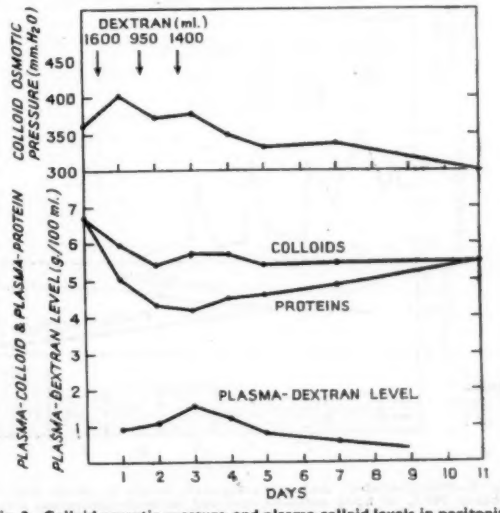

Fig. 3—Colloid osmotic pressure and plasma-colloid levels in peritonitis after intravenous infusions of dextran Ph.

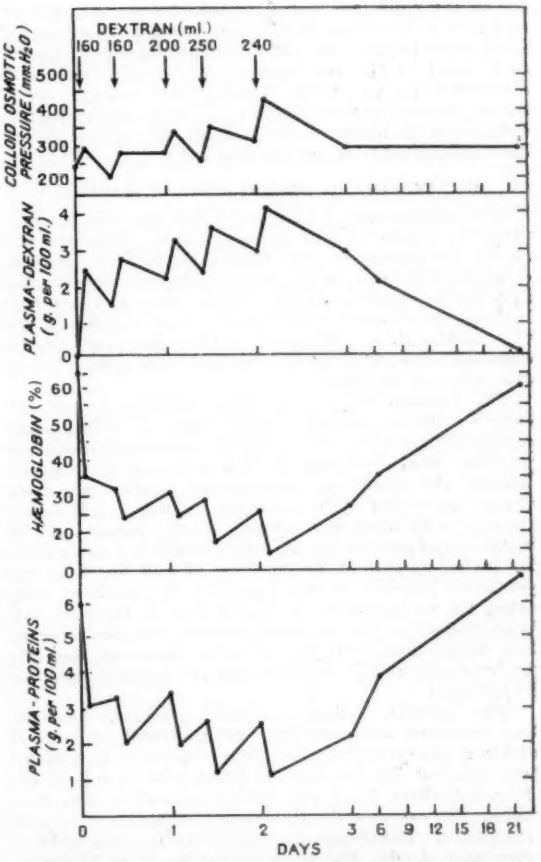

Fig. 4—Colloid osmotic pressure and plasma-protein levels in a rabbit weighing 3·55 kg. given repeated large infusions of dextran Ph.

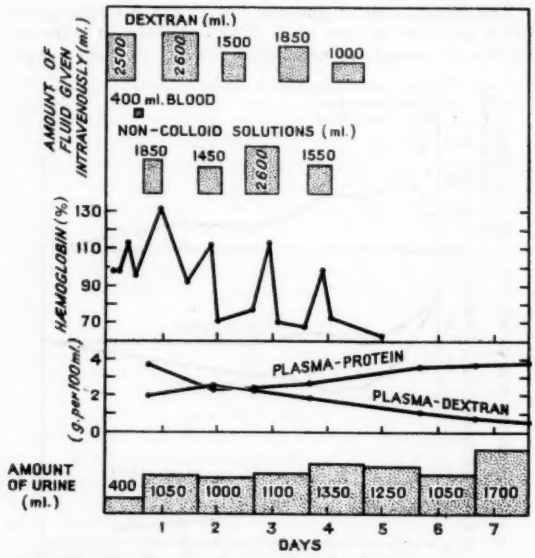

Fig. 5—Plasma-dextran and plasma-protein levels in shock due to burns (40% of body surface), showing hæmoconcentration when non-colloid infusions are substituted for dextran Ph during protracted shock.

per day, irrespective of the amount given. In animals to which dextran has been given in repeated infusions,[1] so that the total amount of dried substance corresponds to a third of the body-weight, no dextran has been discovered in the brain, lungs, heart muscle, liver, spleen, kidney, or bone-marrow, either by morphological changes or in watery extracts from the organs after it has disappeared from the plasma.

MAINTENANCE OF COLLOID OSMOTIC PRESSURE

The maintenance of a normal colloid osmotic pressure plays an important part in metabolism. This pressure affects the passage of fluid from the capillaries into the extravascular space, as well as its subsequent reabsorption into the capillaries. If the colloid osmotic pressure is lowered, the efflux of fluid increases, while simultaneously the reabsorption decreases. The resulting œdema diminishes the exchange of substances and gases between the cells and the blood.

The infusion of a non-colloid solution lowers the colloid osmotic pressure more than it reduces the plasma-colloid level. The lowering of the colloid osmotic pressure often deleteriously affects cellular metabolism, because the conditions requiring an infusion are often those associated with capillary injuries, and consequently with disturbed colloid osmotic pressure. This reduction in pressure can be counteracted and neutralised by giving parenteral dextran (figs. 2 and 3). This has produced notable results, especially in paralytic ileus, when the reabsorption of œdema fluid in the intestinal wall, following the increased colloid osmotic pressure, has manifested itself by restored intestinal motility. In hypoproteinæmia with œdema the urinary excretion is increased.

The normal colloid osmotic pressure, however, can be raised only slightly. If additional amounts of dextran are given only temporary increases in pressure are obtained (fig. 4), and the plasma-dextran level can be raised above 3·5 g. per 100 ml. for only a very short time. The excess of dextran rapidly disappears from the circulation. The plasma-dextran level after such amounts decreases slowly, the time taken for it to disappear corresponding to the quantity given. But the rate of elimination, expressed in g. per kg. of body-weight per day, is the same, irrespective of the initial amount infused.

Flooding of the extravascular space with dextran has not given rise to definitely unfavourable effects in the test animals, but it produces œdema. Such large amounts of dextran are not used clinically.

A raised plasma-dextran level is always associated with a lowered plasma-protein level. When later the plasma-dextran level falls, the plasma-protein level rises again (figs. 4 and 5).

No unfavourable effect from the simultaneous fall in the plasma-protein level has been noted clinically, even though the plasma-protein level has fallen to 2 g. per 100 ml. No sign of disturbed coagulation or reduction in the resistance to infection, in the formation of antibodies after the injection of tetanus and diphtheria anatoxin (Heinertz and Thorsén unpublished), or in the tensile strength of operation wounds has yet been noted either clinically or experimentally after the administration of dextran in therapeutic doses.

The factors, principally dilution and colloid osmotic pressure, acting as mentioned above as well as on the reciprocal concentration of the different fractions of plasma-proteins, have been investigated by Thorsén and Malmros (unpublished).

SUMMARY

Dextran Ph is a polydispersoid polymer of glycose with a molecular weight conforming to that of albumin. It is totally eliminated from the body and is non-toxic. It is very useful as a substitute for blood and plasma in cases where an increase in blood volume or in colloid osmotic pressure is desired.

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DEXTRAN AS A PLASMA SUBSTITUTE

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EXPERIENCE in the 1914–18 war showed that restoration of the circulating blood volume was the most effective single restorative measure in patients who had suffered severe injuries. Bayliss (1919) showed that a fluid which contained colloids having an osmotic pressure similar to that of plasma-proteins could be used as a substitute for blood. He tried soluble starch, dextrin, and gelatin, but discarded them as unsatisfactory. However, gum arabic had most of the desired properties, and a 6% solution in 0·9% sodium chloride was introduced for general use.

* Adviser on transfusion to the Ministry of Health.

Infusion of this "gum-saline" gave remarkably satisfactory results even in patients who had lost much blood. Evidently this was accomplished by increasing the venous return and thus increasing the cardiac output so that the available hæmoglobin, though reduced in amount, could be fully utilised. Gum-saline, by being retained in the circulation for long periods, maintains the blood volume at a satisfactory level until the patient can resynthesise his plasma-proteins. Various workers have since criticised gum-saline, mainly on the ground that the gum is stored in various organs, particularly the liver (Andersch and Gibson 1934, Dick et al. 1935), and that it interferes with liver function (Hall 1938). Other possible colloids for infusion, such as pectin, polyvinyl alcohol, and methyl cellulose, also show storage phenomena, and apparently lead to atheroma of arteries (Hueper 1942a and b).

During the 1939–45 war another synthetic colloid, polyvinyl pyrrolidone, was extensively used in Germany for intravenous infusion (Hecht and Weese 1943). It seems unlikely that the molecules of the vinyl polymers large enough to be retained by the glomeruli can be metabolised by the body; some form of storage may therefore take place.

Swedish workers, after very extensive clinical trials, have reported favourably on dextran solutions prepared in Sweden (Grönwall and Ingelman 1944, 1945a, Bohmansson et al. 1946, Rosenqvist 1947). Dextran has certain theoretical advantages over other non-protein colloids in that (1) it is free from acidic radicals, and therefore not likely to form storage complexes, and (2) it can be hydrolysed into glucose by acids and by certain living organisms which suggests that the human body may also be able to metabolise it slowly.

During the 1939–45 war human plasma and serum were prepared in large amounts; and as they are now widely available it might seem superfluous to pursue the search for a really satisfactory substitute for plasma. However, plasma and serum carry a definite though small risk of infecting the recipient with hepatitis or some other transmissible disease. Moreover there are climatic and geographical circumstances in which a stable plasma substitute which could be manufactured in unlimited amounts might be very valuable. Even where blood and plasma are readily obtainable, and even if it should prove possible to free plasma from all infective agents, it might still be an advantage to have reserves of a plasma substitute for use in some civil or military emergency. The main function of the substitute would clearly be to restore circulating blood volume until the patient's own plasma-protein returned to the circulation. Such a substance would suffer from the theoretical disadvantages of being unable to fulfil the nutritive, buffering, or immunological functions of plasma-protein; but, since usually it would only be taking the place of plasma-protein for a matter of hours, this could not be considered an important objection. It is also clear that a plasma substitute can never be more than second best when the patient has lost whole blood rather than plasma, and that infusion of a plasma substitute in such cases would have to be followed by transfusion of whole blood to secure the best clinical response.

REQUIREMENTS OF A PLASMA SUBSTITUTE

The theoretical requirements are as follows:

Positive Qualities

(1) Its colloid solutes should be retained in the circulation until their place can be taken by the natural proteins. This implies that (*a*) the colloids should not pass readily into the tissue fluids nor be rapidly excreted by the kidney (a molecular size of at least 70,000 is therefore usually desirable); and (*b*) the colloid substance should not be rapidly metabolised or otherwise removed by the tissues.

(2) The solution used for infusion should have an osmotic pressure and viscosity similar to those of plasma.

(3) The composition from batch to batch should be constant, within narrow and definable limits.

(4) The material should be stable during storage and preferably not require special conditions of temperature.

Negative Qualities

(5) It must not be toxic, either locally or generally.

(6) It must not induce fever.

(7) It must not induce sensitisation.

(8) It must not be stored for long periods in the tissues.

(9) It must not act as a diuretic. Apart from the absence of specific diuretic properties, this implies that it should not contain large amounts of solutes of low molecular weight.

All these requirements could be met by a solution of non-toxic non-protein material of suitable molecular weight which was slowly metabolised by the tissues. For maximum osmotic effect with the minimum of material, while still satisfying criterion 1*a*, the range of molecular size should approximate to that of plasma-albumin. The present study shows that dextran preparations can fulfil most of these requirements.

In 1946 the Swedish firm Pharmacia A.B. generously supplied some of their dextran, and it was possible to give this to a few patients and confirm that it was a bland fluid which produced favourable clinical results. Shortly afterwards dextran manufactured experimentally in Britain[1] became available, and it was possible to begin a more extensive trial.

CHEMISTRY OF DEXTRAN AS PREPARED FOR INFUSION[2]

Composition and Preparation

Dextrans are produced by the growth in culture of various micro-organisms, in particular of the non-pathogenic coccus, *Leuconostoc mesenteroides*, in a substrate of sucrose and phosphate. The micro-organism produces an enzyme or enzymes which synthesise dextran from sucrose. After removal of protein and inorganic salts from the culture fluid, dextran is precipitated in the form of a syrupy gum by organic solvents such as acetone; so obtained, it is a polysaccharide composed entirely of glucose units. Each unit is joined by an alpha-glucosidic linkage to the primary alcoholic hydroxyl group of its neighbour. The long chains thus constituted may have occasional branch linkages to adjacent chains through other secondary hydroxyl groups. As with many other polysaccharides, the details and degree of this branching are uncertain.

Swedish workers tested this material for infusion but soon found that the molecules of crude dextran were too large for this purpose. More encouraging results were obtained with preparations whose average molecular size had been reduced by partial hydrolysis with acid (Grönwall and Ingelman 1945a and b, Bohmansson et al. 1946). To avoid confusion in the following paragraphs we use the term "undegraded dextran" for the polysaccharide synthesised from sucrose, and "dextran" for the degraded product produced by acid hydrolysis.

The British company which began dextran production in this country has developed a process for freeing the product from protein and for controlling the range of molecular sizes. Two batches of their material were supplied for trial. The solutions were colourless or of

1. Prof. Sir Norman Haworth and Prof. M. Stacey, of the department of chemistry, University of Birmingham, had been interested for some years in the chemistry of dextran and in the idea of using derivatives of dextran and other polysaccharides as blood-plasma substitutes. Following the Swedish publications, work was continued independently at Birmingham, and samples of degraded dextran were made available for experimental trial. In this work Mr. G. Swift, Ph.D., and Mr. A. R. Lockwood were intimately concerned, and it was largely as a result of the work of this team that experimental batches of dextran became available in this country for clinical trial.
2. The physicochemical and biochemical measurements in this and subsequent sections were made by C. R.

a pale straw colour, and of about the same specific gravity and saline concentration as plasma. Details are as follows:

	GL/50/2	GL/50/3
Batch no.		
Dextran (g. per 100 ml.)	6·35	6·29
Sodium chloride (g. per 100 ml.)	0·86	0·94
Nitrogen (mg. per 100 ml.)	< 1·0	<1·0
Relative viscosity [3]	5·4	4·1
Specific gravity	1·026	1·025
pH	7·0	6·9

These solutions had a colloid osmotic pressure 1·5–2·0 times that of normal plasma.

Outline of Methods of Estimation

For satisfactory assessment of its value for resuscitation, methods of estimating dextran in infusion solutions, blood, tissue fluids, and tissue extracts are required. There are two principles upon which such estimation can be based. The more fundamental is the hydrolysis of the dextran and the measurement of the resulting glucose. This method has accordingly been developed, and the conditions have been worked out for the full hydrolysis of dextran by acid so that decomposition of glucose is avoided. Then the glucose is estimated by the method of Schaffer and Hartman (1921).

The method of Hint and Thorsén (1947) uses a different principle, depending on the formation of a complex between dextran and copper which is insoluble in alkaline solution. Under these conditions copper is removed quantitatively by the dextran. After the amount of copper remaining has been determined colorimetrically with diethyl-dithiocarbamate, the amount of dextran can be calculated from a calibration curve. Alternatively the copper-dextran complex can be isolated and the colour given with indole and sulphuric acid used for estimation of the dextran (Goldenberg et al. 1947). In the clinical trial the hydrolytic method was used for estimating dextran in the bottles supplied by the manufacturers and in urine samples. The unmodified copper-complex method of Hint and Thorsén was used for plasma samples, after a calibration curve had been prepared by mixing dextran solutions of known composition with plasma. A slight modification of the copper-complex method enabled it to be used for urine samples as well.

Methods of Delimiting Molecular Size

The partially hydrolysed dextran used for infusion contains molecules of different sizes. As stated above, its efficiency depends on the range of sizes of molecules and the mean molecular weight. Several physicochemical methods help to define these quantities.

In general, *osmotic pressure* depends on the relative concentrations on the two sides of a semipermeable membrane. As well as being of direct importance in an infusion fluid the osmotic pressure is thus also a measure of the mean molecular size of substances to which the membrane is impermeable. When dextran solutions are put up in osmometers, such as are used for plasma-proteins, there is difficulty in establishing equilibrium. The small molecules of dextran p ss through the membranes, which are impermeable to hæmoglobin, and the initial pressure reading is not maintained. Dextran can then be detected outside the semipermeable sac. When about 85% of the dextran was first separated by acetone precipitation and then redissolved, this solution of the larger molecules came to a satisfactory equilibrium in the osmometer. The results indicate a mean molecular size of 75,000 ± 10% for this fraction.

The *viscosity* of a solution is a further guide to the molecular size of the colloids it contains. In general, the higher the viscosity the larger the molecules, but with mixtures of colloids of different sizes viscosity is liable to be unduly affected by large molecules. It thus yields reliable results only when the distribution of molecular sizes around the mean is similar in the solutions compared. This principle has been used to compare the mean molecular sizes of different batches of dextran.

Dextran excreted in the urine of a patient transfused with batch GL/50/2 was shown by viscosity measurements to have a much lower molecular weight than that of the material infused. This finding is in line with the demonstration by osmometry of the presence of small molecules in a dextran solution. The early excretion of about a fifth of the material appears to be a filtering off of this small molecular fraction.

Another procedure which depends on the molecular size of dextran is its *fractional precipitation* by acetone. When acetone is added to a dextran solution the larger molecules precipitate first; but, as more is added, progressively smaller molecules come down. This method does not give a precise division at a particular molecular size, but it provides a practical test of the approximate limit to the range of sizes present in a solution.

On the basis of these studies it is possible to determine closely the composition of a preparation of dextran. For example, in batches GL/50/2 and GL/50/3 the range of molecular size was such that no dextran could be precipitated by the addition of 42 ml. of acetone to 100 ml. of the solution, whereas the addition of 122 ml. of acetone caused complete precipitation.

EXPERIMENTAL OBSERVATIONS [4]

The batches of British dextran used in this pilot trial have been examined in the laboratory to exclude toxicity, pyrogenicity, and antigenicity; to investigate their effectiveness in restoring the blood-pressure of animals which have been bled; and to ascertain the fate of dextran in the body after injection.

Toxicity

Dextran has been injected intravenously in volumes up to 1 ml. in mice without producing any harmful effects. Likewise, rabbits receiving injections of volumes from 10 ml. per kg. of body-weight per day for four days to 22 ml. per kg. per day for seven days have shown no abnormal clinical signs during, or for periods up to fourteen weeks following, the course of injections. Albuminuria and hæmaturia have not been observed.

In guineapigs no significant difference has been detected in the cutaneous reactions following the intradermal injection of saline solution and dextran.

3. The relative viscosity is obtained by dividing the flow time for dextran in an Ostwald viscometer by the time for water in the same instrument. Measurements were made at 37°C.

4. All the experimental observations, save those on pyrogenicity, were made by W. d'A. M. and S. J. L. S.

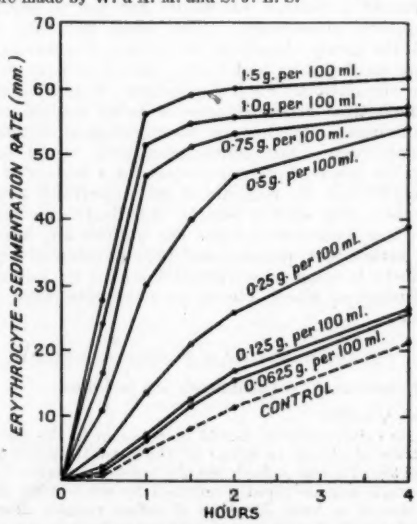
ERYTHROCYTE-SEDIMENTATION RATE (mm.)
HOURS
1·5 g. per 100 ml.
1·0 g. per 100 ml.
0·75 g. per 100 ml.
0·5 g. per 100 ml.
0·25 g. per 100 ml.
0·125 g. per 100 ml.
0·0625 g. per 100 ml.
CONTROL

Fig. 1—Effects of different plasma-dextran levels on erythrocyte-sedimentation rate (Wintrobe) in man.

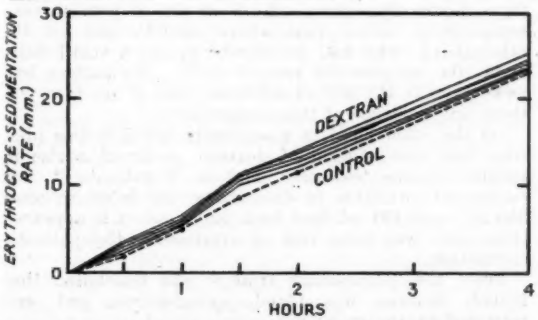

Fig. 2.—Effects of different plasma-dextran levels (1·0, 0·5, 0·25, 0·125, and 0·0625 g. per 100 ml.) of dextran of molecular weight about 26,000 on erythrocyte-sedimentation rate (Wintrobe) in man.

The histological examination, at intervals of up to ninety days, of the liver, kidneys, spleen, cardiac muscle, thyroid, and suprarenal glands from rabbits used in the laboratory investigations has revealed no abnormalities.

Pyrogenicity

Through the kindness of Mr. F. C. McIntosh, PH.D. of the National Institute for Medical Research, Hampstead, all the batches have been subjected to the standard rabbit pyrogen tests in use in that laboratory. None of the batches of dextran, given in doses of 20 ml. per kg. of body-weight to groups of three rabbits, has been found to be pyrogenic. The maximal permissible rise of temperature in each rabbit was 0·6°C.

Antigenicity

No anaphylactic phenomena have been observed in guineapigs in which the induction of sensitivity was attempted by the intraperitoneal injection of 1 ml. of dextran. The gut and uterus were examined fourteen and twenty-one days later by the usual techniques.

The serum of rabbits injected with dextran intravenously (six doses of 0·6 ml. at two-day intervals) and bled eleven to fourteen days after the last injection has contained no antibodies demonstrable by the ring and precipitin tests. Nor have antibodies been detected in the sera, examined at various intervals after injection, of animals surviving substitution of half their blood volume with dextran or given courses of injections of dextran without preliminary reduction of the blood volume.

Restoration of Blood-pressure

In rabbits anæsthetised with pentobarbitone sodium, and rapidly deprived of about half their estimated blood volume by bleeding from a cannula inserted into one of the carotid arteries, the intravenous infusion of an equivalent amount of dextran restored the blood-pressure rapidly and maintained it for 3–3½ hours. The restoration of blood-pressure was more rapid than after transfusion with whole blood or infusion with saline solution; hence the infusions had to be given more slowly than with blood or with saline solution. The level to which the blood-pressure was restored was somewhat higher than after transfusion with blood or infusion with saline solution.

Erythrocyte-sedimentation Rate, Rouleaux Formation, and Hæmagglutination

Immediately after infusion the erythrocyte-sedimentation rate (E.S.R.) is increased and rouleaux can be observed in smears of blood. The alteration in the E.S.R. varies with the plasma-dextran level (fig. 1). Rouleaux have been observed when the plasma-dextran level is 0·5 g. or more per 100 ml., but not with levels of 0·25, 0·125, or 0·0625 g. per 100 ml. No increase in the osmotic fragility of the red cells has been observed after the transfusion of dextran.

Erythrocytes which have been exposed to dextran can readily be freed from it by washing, so that their reactions with grouping sera can be correctly determined. However, the presence of dextran in a patient's plasma may interfere with direct matching tests, by causing heavy rouleaux formation of the prospective donor's erythrocytes. This rouleaux formation may not be completely abolished by dilution of the plasma with an equal volume of saline solution, but on further dilution the rouleaux will disappear. Dilution of the patient's plasma with, say, three times the volume of saline solution before direct matching clearly cannot be recommended as a routine, because it might cause true but very weak agglutination to be overlooked; and, more important, might lead to overlooking the presence of a blocking antibody. However, in these circumstances direct matching by the indirect Coombs method would reveal the presence of incompatible blocking antibody. It is clearly best to obtain a sample of serum from the patient as a routine before giving an infusion of dextran, so that, if the patient later requires a blood-transfusion, serum free from dextran is available for a direct matching test.

In an attempt to discover whether the increased E.S.R. is brought about by large or small molecules of dextran, measurements have been made with degraded dextran of a molecular weight (about 26,000) considerably lower than that of the batches supplied for clinical trial (fig. 2). It will be seen that the E.S.R. varies little from the control over a range of plasma-dextran levels from 1·5 to 0·0625 g. per 100 ml. Similarly, rouleaux formation has been studied in a 5% suspension of red blood-cells in various concentrations of dextran in 0·9% saline solution as follows:

Dextran %	*Approximate Molecular Weight* 26,000	44,000	74,000	88,000
1·0	—	+	+ + +	+ + + +
0·75	—	+	+ +	+ +
0·50	—	—	+	+
0·25	—	—	—	+
0·125	—	—	—	—
0·0625	—	—	—	—
0·03125	—	—	—	—
0·0	—	—	—	—

\+ Few rouleaux of 4–8 cells.
\+ + Many short rouleaux.
\+ + + Many short and some long rouleaux.
\+ + + + Many short and long rouleaux; few free cells.

Though it has been impossible to determine the E.S.R. at other known higher molecular weight ranges, we may conclude that the larger molecules of degraded dextran are responsible for the increased E.S.R. observed after the infusion of dextran.

Fate of Dextran

As a means of detecting the presence of dextran in the tissues use has been made of the fact that antisera to *L. mesenteroides* precipitate with dextran (Evans et al. 1941, Sugg and Hehre 1942), which behaves as a haptene. It has been found that good antisera, prepared in rabbits, react with the dextran used in this trial in concentrations of 1 : 1,000,000 (sensitivity of the chemical method of Hint and Thorsén (1947), in our hands, 1 : 2000). The serological method of detecting dextran has been used in these experiments only as a qualitative test. Its use for the quantitative determination of dextran is being investigated, and will depend to some extent on the constancy of the molecular composition of the degraded polysaccharide.

The tissues of rabbits, which had been given dextran intravenously over seven days in amounts equivalent to 9 g. per kg. of body-weight (comparable with an infusion of 1·5 litres per day for seven days in the average adult),

were perfused with physiological saline solution to remove blood; they were then minced, ground in sand, and extracted with a volume in millilitres of 0·9% saline solution roughly equivalent to the weight of the tissue in grammes. The resulting extracts were defatted by freezing with excess ether three times, separated, and centrifuged. The results obtained by the chemical and serological methods are shown in table I.

The tissues of uninjected rabbits, examined in the same way, have given negative results with both the chemical and the serological methods. The tissues of animals kept longer than eight weeks after receiving dextran are being examined.

Dextran was detected serologically in the urine of these rabbits, usually until the fifth or sixth day after the course of injections; in one animal it was detectable until the twelfth day.

No significant increase in urine volume was observed after the injection of dextran in volumes equivalent to half the blood volume. Comparable estimations on tissues of human patients are being undertaken.

Incubation of Dextran with Blood, Tissue Extracts, and Tissue Suspensions

Blood was mixed with a third of its volume of 6% dextran solution and the mixture was kept at 37°C for seven days. The fall in dextran concentration averaged 1·5% per 24-hour period, compared with 30–33% in the blood-stream of a patient. When dextran was incubated with saline extracts of guineapig pancreas and liver or with suspensions of finely ground rabbit lymph-gland, spleen, and liver, negligible changes in dextran concentration were recorded during 120 hours.

CLINICAL TRIALS

The preliminary trials, and the trials on patients undergoing major operations, were made at the Blood Transfusion Research Unit and in the departments of medicine and surgery at the Postgraduate Medical School of London, and the trials on patients with burns at the burns unit of the Birmingham Accident Hospital.

Preliminary Trials

It was decided that the initial infusions of British dextran should be given to patients with inoperable carcinoma; 6 such patients received an infusion of 300–500 ml. of dextran over periods of 30–90 min. No ill effects of any kind were noted. Temperatures were recorded half-hourly throughout each infusion and for three hours thereafter. In 5 of the 6 patients the temperature never rose above 98·4°F, and in the 6th patient, who had previously shown a small daily fever, the temperature rose to 99°F. No patient had local pain at the site of injection, and in no case was there any evidence of thrombophlebitis.

On the other hand, it was readily noted in this pilot trial that the infusion of dextran produced a rise in jugular venous pressure; and in 2 patients it was considered advisable to discontinue the infusions after 300 ml. and 400 ml. had been given, when it appeared that there was some risk of overloading the patient's circulation.

From this preliminary trial it was concluded that British dextran was bland, pyrogen-free, and well tolerated by the recipients.

Patients Undergoing Major Operations

Dextran was given to 29 patients undergoing more or less severe surgical operations. The amounts given were as follows: 13 patients received one bottle (540 ml.), 13 received two bottles, 1 received three bottles, and 2 received four bottles. The rates of infusion varied from 200 ml. in 2 min. to 540 ml. in 6 hours (by slow drip), and the ages of the recipients ranged from 8 to 81 years.

It was appreciated at the outset that it would be difficult in such a trial to obtain decisive evidence of the value of dextran compared, for example, with that of blood or of plasma. Nevertheless, the results obtained have been very promising, as will be seen from the following representative examples:

Case 1.—Male, aged 41. On June 1, 1948, partial gastrectomy was done for chronic peptic ulcer, 500 ml. of whole blood and 1 litre of saline solution being given during operation. Next day the patient's condition was satisfactory. On June 3, 48 hours after operation, after drinking a little water, he suddenly developed upper abdominal pain and collapsed. On examination 80 min. later he was restless and his skin cold and clammy; pulse-rate 104, pulse volume poor; blood-pressure (B.P.) 136/104. His blood showed evidence of slight hæmoconcentration (hæmatocrit reading 54 c.cm. per 100 ml., Hb 112%). Leakage at the gastrectomy suture line was diagnosed, and an infusion of dextran (GL/50/3) was started. After 540 ml. had been given in just over an hour, the pulse had become stronger, and the patient was a little warmer; B.P. 132/90. After a further 250 ml. of dextran in another hour the B.P. was 162/106, and the patient's pulse was now good. He had become more wide awake, having previously been lethargic. The hæmoglobin percentage had fallen from 112 to 96. The

TABLE I—DEXTRAN CONCENTRATION IN RABBIT TISSUES

Tissue	Rabbit 1 (control)		Rabbit 2		Rabbit 3		Rabbit 4		Rabbit 5		Rabbit 6	
			Days after injection									
	Chem. (mg./g.)	Serol.	2		9		21		35		56	
			Chem. (mg./g.)	Serol.	Chem. (mg./g.)	Serol.	Chem. (mg./g.)	Serol.	Chem. (mg./g.)	Serol.	Chem. (mg./g.)	Serol.
Liver	ND	0	0·3	+++	0·2	+	ND	++	ND	? +	ND	+
Kidney	ND	0	0·2	+++	0·3	+	ND	+	ND	? +	ND	++
Cervical lymph-gland	ND	0	2·3	+++	2·5	+++	1·6	+++	ND	+	D	+
Mesenteric lymph-gland	ND	0	1·5	+++	2·3	++	1·4	+++	ND	++	ND	+
Popliteal lymph-gland	ND	0	—	+++	5·0	++	D	+++	D	++	ND	+
Spleen	ND	0	2·0	+++	1·4	+	1·4	—	ND	+++	ND	++
Muscle	ND	0	0·2	++	0·6	+	ND	+	ND	+	ND	0
Plasma	ND	0	10·4	+++	5·2	++	0·5	—	0·5	++	ND	0

Chem., dextran concentration in mg./g. estimated by chemical method: D, detected; ND, not detected; —, not tested.
Serol., presence of dextran tested for by serological method: +, positive result; 0, negative result; —, not tested.
Animal 6 received dextran 6·1 g. per kg. of body-weight, comparable with a transfusion of 1 litre a day for 7 days in the average adult.

patient was considered fit for operation, and under thiopentone and cyclopropane anæsthesia laparotomy was performed. The peritoneal cavity contained just under 500 ml. of free fluid. The gastric wall at the site of the previous anastomosis was excised and gastro-enterostomy was redone.

A further 540 ml. of dextran was given during the latter part of the operation, and this was followed by intravenous glucose-saline solution. No other intravenous therapy was given. The patient's condition remained satisfactory and he made a complete recovery.

This patient developed signs of peripheral failure following leakage of stomach contents from a breaking down gastric operation wound. His circulation was greatly improved after administration of about 1 litre of dextran, and the administration of a further $^1/_2$ litre enabled him to withstand a second operation without redeveloping any signs of peripheral failure. He made a good recovery. A firm impression was left that only the transfusion of whole blood or of plasma could have produced a similar result.

Case 2.—A man, aged 46, had malignant hypertension with a resting B.P. of 245/130. On July 20, 1948, transthoracic lumbar sympathectomy was done. During the operation his B.P. began to fall, and an infusion of 540 ml. of dextran (GL/50/3) was begun. There was very little bleeding during the operation, but the blood-pressure continued to fall to 94/56. A further 540 ml. of dextran was infused over the next 4 hours, and the B.P. was by that time remaining at about 120/70. Dextran was now discontinued, and a saline-solution drip was given. The B.P. immediately fell again, and in 4 hours had reached 80/58. At this point a third amount of 540 ml. of dextran was infused in 2 hours, producing a rise in B.P. to 110/70, and a fourth bottle in $3^1/_2$ hours still further increased the B.P. to 154/112. The B.P. was taken hourly over the next four days and remained stationary at 146/84. There was no further fall, and the patient made a good recovery.

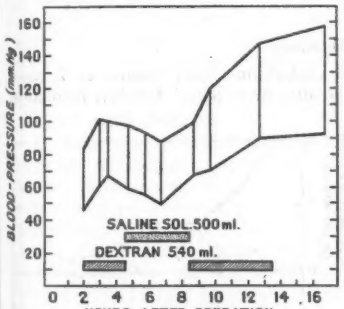

Fig. 3—Effects of two postoperative injections each of 540 ml. of dextran and of 540 ml. of saline solution on blood-pressure (case 3).

A considerable fall in blood-pressure in a patient undergoing sympathectomy for malignant hypertension was successfully restored with dextran. When the dextran was discontinued, and saline solution infused in its place, the B.P. fell again and continued to fall to a dangerously low level. Further amounts of dextran were given, and the B.P. rapidly rose again. No further fall took place, and the patient made a good recovery and about two months later walked home. In this case again the impression was gained that in the restoration and maintenance of the B.P. dextran was an infusion fluid superior to saline solution. This impression was further substantiated by the next case.

Case 3.—A man, aged 81, poorly nourished and helpless, had chronic bronchitis, emphysema, and carcinoma of the rectum. He was in hospital for two months, during which time measures were taken to improve his general condition and nourishment before he was considered fit to undergo colostomy and perineal resection of the rectum. His hæmoglobin concentration before operation was 16·1 per 100 ml. Operation was successfully carried out, 1 litre of whole blood being given during the procedure, and the patient returned to the ward in good condition. After 2 hours, however, he became cold and clammy, his pulse was thready, and his B.P. was 84/45 (fig. 3). Dextran (GL/50/3) was infused, and after 250 ml. had been given in 45 min. the B.P. was 102/60. The patient's general condition had greatly improved, and a further 290 ml. of dextran was given by drip over a period of 2 hours, followed by a saline-solution drip. Saline solution was given over a period of 4 hours; the B.P. fell gradually, the patient's condition grew worse, and his skin became cold to touch. Consequently a further 540 ml. of dextran was infused, and this produced a rapid and sustained rise in B.P. The jugular venous pressure had also risen to +1 cm. by the end of this infusion; and, to avoid any overload, intravenous therapy was discontinued at this point. The B.P. did not fall again, and the patient improved rapidly.

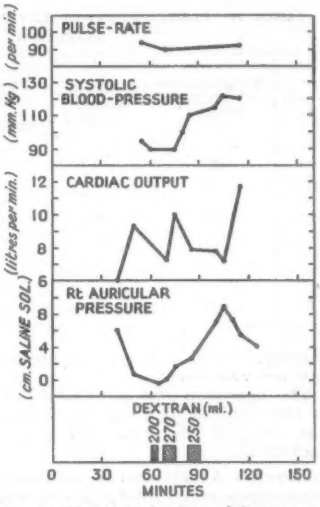

Fig. 4—Effects of injections of dextran on right auricular pressure, cardiac output, and systolic blood-pressure during operation (case 4).

Intravenous dextran rapidly restored and maintained the B.P. in an elderly patient who had undergone a severe operation. This case again emphasised the necessity to note carefully the state of venous filling to avoid circulatory overloading when infusing dextran, especially in an elderly person.

Further information on the effect of dextran infusion on the venous filling pressure and cardiac output was obtained in two patients studied with the cardiac catheter during operation. Right auricular pressure (R.A.P.) was measured with a saline-solution manometer, and cardiac output by the Fick principle, by the methods already described by McMichael and Sharpey-Schafer (1944) and Sharpey-Schafer (1944).

Case 4.—A woman, aged 65, had had jaundice and intermittent abdominal pain for four months. Obstructive jaundice was diagnosed, choledochostomy under nitrous oxide and ether anæsthesia was done, and a large single cholesterol stone was removed. The bile-duct was drained. Fig. 4 is a graphic record of measurements made in a cardiac catheter study during the operation, which lasted 125 min. The R.A.P., cardiac output, and B.P. fell towards the end of the first hour, and dextran (GL/50/3) was given through the catheter in amounts of 200 ml., 270 ml., and 250 ml. in $4^1/_2$, 7, and 7 min. respectively. The R.A.P., cardiac output, and B.P. each showed a satisfactory rise. The R.A.P. continued to rise for several minutes after administration of

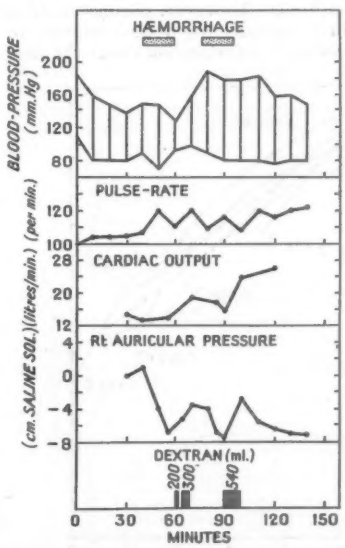

Fig. 5—Effects of injections of dextran on right auricular pressure, cardiac output, and blood-pressure during operation associated with hæmorrhage (case 5).

TABLE II—PLASMA-DEXTRAN LEVEL SOME HOURS AFTER INJECTION

Case no.	Total amount of dextran infused (g.)	Duration of infusion (hours)	Plasma-dextran level (g. per 100 ml.)	Time after infusion of first plasma sample (hours)
8	68	7½	0·88	1
4	44	½	1·25	3
2	136	20	1·8	1
9	68	4	1·05	8
3	56	12	1·19	5
10	134	40	0·94	22

dextran, probably because dextran has a greater osmotic pressure than blood.

The operation was completed, and the patient returned to the ward in excellent condition. Postoperatively there was no fall in B.P., and convalescence was entirely uneventful.

Case 5.—A man, aged 56, with gastric carcinoma underwent splenectomy and subtotal gastrectomy under nitrous-oxide, oxygen, and ether anæsthesia. His B.P. before operation was 190/100, and catheter measurements were made during the operation. On two occasions (fig. 5) during the operation a very brisk hæmorrhage caused a fall in R.A.P., cardiac output, and B.P. Dextran (GL/50/3) was given as follows: 200 ml. in 2 min. and 300 ml. in 4 min. on the first occasion; and 540 ml. in 8 min. on the second. On each occasion the R.A.P. and cardiac output were successfully restored and the B.P. maintained. The operation lasted 140 min. and was completed successfully, but by the end the R.A.P. had begun to fall again. Further resuscitation was carried out by means of whole-blood transfusion in view of the severe blood-loss, and the patient recovered.

In this case dextran was used to restore the venous filling pressure and maintain the B.P. when these were falling during hæmorrhage.

Plasma Levels of Dextran

The postoperative patient is not the ideal subject in whom to estimate serially plasma-dextran levels, since these levels are modified by exudation into wounds and, in many instances, by the need to administer intravenous crystalloid fluids. However, plasma-dextran has been estimated in 7 patients for periods of two to seven days, and approximate information about the rate of disappearance of infused dextran from the blood has been obtained. About a third of the dextran present at a time disappears during the next 24 hours. In table II a few details are given of 6 cases in which the plasma-dextran level was estimated at intervals after infusion. It will be noted that the first sample was often only obtained many hours after infusion, and the plasma-dextran level observed was doubtless lower than the maximum attained. However, the observed figures have been taken as 100%, and plasma-dextran levels observed subsequently have been expressed as percentages of these figures. In fig. 6 the serial plasma-dextran levels in 6 patients are plotted as percentages of the maxima against time. These percentages are shown on a logarithmic scale, and the corresponding straight line for one-third decrement per day is put in for comparison.

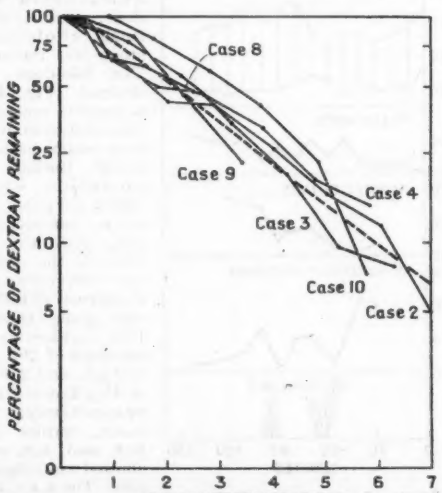

Fig. 6—Rates of disappearance of dextran from plasma after infusion in 6 cases; interrupted line representing a third decrement a day has been inserted for comparison.

Plasma-protein and Plasma-dextran Levels

In 3 cases the plasma-protein and plasma-dextran levels were measured in serial plasma samples. It was found that the plasma-protein level was reduced after the infusion of dextran and slowly rose again as the dextran was eliminated. Thus the total of protein + dextran tended to remain constant. An example is given in fig. 7.

Renal Excretion of Dextran

Eight-hourly urine collections were made in 7 cases over periods of two to five days after dextran infusions, and the dextran content was estimated. The total amount recovered varied from 9 to 26% of the total amount infused. In 6 out of 7 cases the concentration in the urine had fallen to a low level by the end of 48 hours after the infusion, but in one case an appreciable amount was still being excreted on the fifth day. One result is illustrated in fig. 8, in which the total amount of dextran excreted in serial 8-hour samples has been recorded. In this case 30 g. of dextran was infused into a patient with carcinoma; 7·35 g., 25% of the total, was excreted in the urine, and half of this amount came out within 8 hours of the infusion. This case has been chosen for illustration because this patient, unlike the others, had not just had an operation.

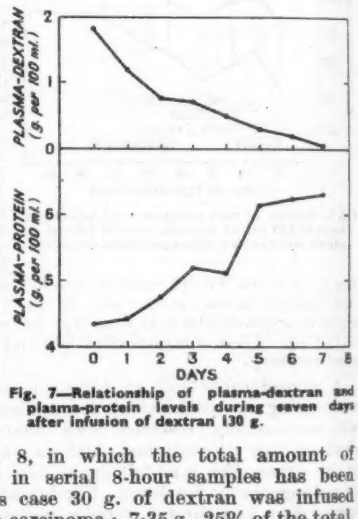

Fig. 7—Relationship of plasma-dextran and plasma-protein levels during seven days after infusion of dextran 130 g.

In another patient, in whom the common bile-duct was drained for ten days after operation, there was an opportunity to see whether dextran was excreted in the bile. Though the plasma-dextran level exceeded 1 g. per 100 ml. during the relevant period, no dextran was detected in the bile.

Reactions to Infusion

During these trials no pyrexia reactions followed dextran infusions, nor were there any subjective complaints either of a general nature or of local pain at the site of infusion. Urticaria was not seen. Finally, there was no instance of venous thrombosis or thrombophlebitis among the cases.

Follow-up

Some months after receiving dextran 6 of the patients were recalled to hospital. All but 1 appeared healthy. The exception, who had a dissecting aneurysm of the abdominal aorta, was in poor health and had albuminuria. Nothing abnormal was found in the urine of the remaining 5. Clinical examination of all 6 revealed no change in size of liver or spleen, no enlargement of lymph-glands, and no alteration in B.P. Blood examination showed no lowering of hæmoglobin percentage or of serum-protein level, and no increase in serum-bilirubin. Dextran was not detected in the plasma either by chemical tests or, in 5 of the 6 cases, by the very sensitive serological method. In the 6th case the test was only very doubtfully positive.

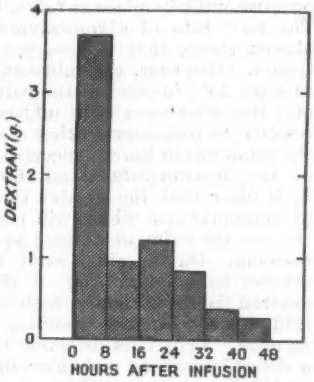

Fig. 8—Excretion of dextran in urine in 8-hour periods after infusion of dextran 30 g.

Patients with Burns

Plasma has for some time been regarded as the most suitable transfusion fluid for patients with extensive burns, and units treating burns have considerable experience of the effects to be expected from plasma-transfusion. It was thus felt that cases with severe burns would be particularly suitable for assessing the value of dextran. It was given to 2 patients who would otherwise have had plasma.

Case 6.—A boy, aged 8, burned the whole of his right leg and was admitted to the burns unit an hour later in fairly good general condition, a little cyanosed, and with cold extremities and a pulse-rate of 80. An hour after admission the venous hæmatocrit reading was 41 c.cm. per 100 ml. and the pulse-rate 88. An intravenous dextran drip (batch GL/50/2) was started (fig. 9): 200 ml. of dextran was given in the first hour, and 100 ml. in the next hour; by the end of 2 hours' infusion the boy's general condition was very good. His feet were warm, and his colour was much improved. The hæmatocrit reading was 39 c.cm. per 100 ml. and pulse-rate 80. The drip was now slowed to a rate of 50 ml. an hour.

Plenary dressing was done 4 hours after the start of the infusion; the burnt area was estimated to be 15% of the body surface, the burn being almost entirely superficial. The dressing operation lasted an hour, and the patient's condition remained very good throughout. At the end the pulse was of good volume, rate 90, and the hæmatocrit reading 42. By that time 450 ml. of dextran had been given. The rate of flow was then increased to about 75 ml. an hour, and 4 hours later the hæmatocrit reading had fallen to 38. The rate of flow was again reduced to about 50 ml. an hour, and the hæmatocrit reading four hours later was 40.

Throughout this time the good condition of the patient was well maintained. He was taking fluids freely by mouth and was passing large quantities of urine. The dextran drip was discontinued 18 hours after its start, a total of 1080 ml. (≡ 69 g. of dextran) having been given. Urine specimens continued to be collected 8-hourly, and samples of blood were taken at increasing intervals.

A slight pyrexia—99–100°F—had begun during the first day and continued for nine days. This is a common finding in burned patients. Otherwise the patient's general condition was excellent. His hæmatocrit reading, after rising to 44 on the day after cessation of the transfusion, fell slowly to 37 four days after the accident; thereafter it showed no further change. The hæmoglobin was 11·9, 12·1, and 11·9 g. per 100 ml. on the fourth, seventh, and fifteenth days after burning. A complete clinical examination made on the eighth day showed no abnormalities; no abnormality was detected in the urine, and the blood-urea was within normal limits (25 mg. per 100 ml.) The areas of full-thickness skin-loss, which were grafted on the nineteenth day, took just as well as in comparable patients resuscitated with plasma. When seen three months after the injury the boy had been playing games and was in excellent condition.

Plasma-dextran Levels.—A maximum of more than 2 g. of dextran per 100 ml. of plasma was reached at the end of the infusion (fig. 9). This gradually declined by about a third per 24 hours, with the result that 1 g. of dextran per 100 ml. was still present 60 hours after the start of the infusion. Only a trace of dextran remained in the plasma after ten days.

Plasma-protein Levels.—From an initial value of about 5·7 g. per 100 ml. the plasma-protein level fell to 3·3 g. per 100 ml., when the plasma-dextran level was at its highest. As the dextran later disappeared the protein returned, with the result that the total colloid was maintained at about 6 g. per 100 ml. The protein had regained normal values by the fourth day after the transfusion.

Urinary Excretion of Dextran.—Dextran appeared in the urine within an hour of the start of the infusion. A fifth of the weight of dextran infused was excreted, and most of this came out within a few hours of ending the infusion.

Intravenous dextran given to this patient with fairly severe burns provided a satisfactory substitute for plasma transfusion. Its effect in counteracting hæmoconcentration was clearly demonstrated, and a plasma-dextran level rising to 2 g. per 100 ml. was tolerated without evidence of ill effects either immediate or remote; the dextran only disappeared slowly from the plasma after infusion.

Case 7.—A woman, aged 42, received severe burns when her clothes caught fire. She was admitted to the burns unit two hours later, severely shocked, cyanosed, and with cold extremities and an imperceptible pulse; the venous hæmatocrit reading was 60 c.cm. per 100 ml.

Within half an hour an intravenous infusion of dextran (GL/50/2) was started, and half an hour later, when 1 litre had been given, the pulse became palpable at the temple. The hæmatocrit reading had now fallen to 44, and with the improving circulation the morphine gr. $^1/_3$, which had been given before the patient's admission, began to take increased effect. The respiration-rate was depressed to 12 per min. and fell during the next hour to 8 per min. In the first 3 hours of infusion 3 litres of dextran was given, and hæmoconcentration was well controlled. About this time there was trouble with vomiting, which continued to interfere with the administration of fluids by mouth for the next 15 hours. The intravenous dextran was continued for 24 hours, 4540 ml. (≡ 288 g. of dextran) being given in all. The drip was then continued with 1 litre of saline solution given during the next 24 hours. The patient's

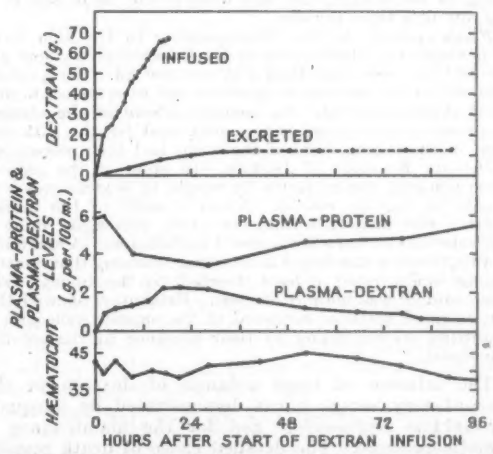

Fig. 9—Hæmatocrit, plasma-protein and plasma-dextran levels, and infusion and excretion of dextran in boy with extensive burns (case 6).

general condition improved, and she began to take more interest in her surroundings. Regular blood samples were obtained, though the extensive burns made choice of site difficult. Urinary output was low during the first two days.

The plenary dressing was done on the second day after admission. Full-thickness burns were found on all limbs, and partial-thickness burns as well on the back, face, neck, and chest. All these areas were very œdematous. A total of 50% of the body surface was affected—40% deep, and 10% superficial burns. Despite prophylactic systemic penicillin, the burns became infected.

After the vomiting had ceased on the first day of treatment, the patient took fluids well by mouth: 5 litres was given on the second day, and 4 on the third. The output of urine then improved. At this time respirations were normal and the extremities were warm. A moderate pyrexia superseded the abnormally low temperatures recorded in the earlier stages. Hæmatocrit readings were 33–37.

On the fourth day there was little change. The hæmoglobin percentage and hæmatocrit reading were both low, as would be expected during the reabsorption of the œdema fluid, and blood-transfusion was arranged for the following morning. During the night the patient's condition deteriorated. At 6 A.M. on the fifth day the temperature had risen to 102°F, the respirations were 38 per min., and the pulse, which was of poor volume, had a rate of about 50. No adventitious sounds were heard in the chest. The patient began to be irrational. Blood-transfusion was started, and oxygen was given by B.L.B. mask. 1300 ml. of blood was given, but the patient became increasingly comatose, and her temperature continued to rise. In the afternoon, 114 hours after admission, she died. Blood-culture taken at death yielded *Pseudomonas pyocyanea*.

It is uncertain what determined the deterioration in the final 12 hours. The hæmoconcentration of the shock phase had been satisfactorily corrected; the plasma-protein level was rising to normal values, and urinary output was improving. Reabsorption of œdema fluid was taking place; hence overloading of the circulation might have been a factor. Against this, the symptoms were of cerebral type, and no abnormal chest sounds were heard. Toxic absorption from the very large infected burn seems the most important feature.

Necropsy (Dr. S. Sevitt) showed œdema and congestion of parts of the lungs and evidence of raised intracranial pressure. Histological examination of the liver showed a widespread non-hæmorrhagic necrosis. The kidney tissues were œdematous, and there was desquamation of cells lining Bowman's capsule and the loop of Henle. The appearance of the liver may have been due to post-mortem autolysis. The cause of the kidney changes remains in doubt.

Plasma-dextran Levels.—A maximum of 4 g. of dextran per 100 ml. of plasma was reached. This declined fairly rapidly, possibly by loss into the œdema fluid, to about 1·5 g. 24 hours later, and then more slowly, as in case 6, at the rate of a third per day.

Plasma-protein Levels.—Corresponding to the high levels of dextran, the plasma-protein levels became very low and for 30 hours were less than 2 g. per 100 ml. The proteins returned as the dextran disappeared and were almost normal when death occurred. No harmful effects of the changes in plasma-protein level were noted, and by the fifth day most of the œdema fluid of the burns had been reabsorbed.

Urinary Excretion of Dextran.—In spite of the reduced urine volumes, the excretion by weight of dextran was very similar to that in case 6. About a sixth of the infused dextran was recovered from the urine, and again most of this came out within a few hours of the infusion. A maximum of 13% dextran was found in the urine, showing that dextran can be concentrated at least threefold by the kidney. This urine sample was notably viscous. Estimation showed that the excreted material consisted of the smaller molecules in quantities corresponding to their presence in the solution transfused.

The infusion of large volumes of dextran in this case of very severe burns demonstrated its adequacy for volume replacement and for the maintenance of osmotic pressure. The detailed cause of death remains in doubt, but the burns in themselves, could easily have been fatal. There was no evidence that dextran contributed to the fatal outcome.

DISCUSSION

The degree to which dextran fulfils the theoretical requirements laid down above can now be discussed.

Dextran is well retained in the circulation, and our observations show that it can maintain the osmotic pressure until its place is taken by the plasma-proteins. The slow rate of disappearance of dextran from the plasma shows that it does not pass rapidly into the tissues. However, a significant proportion, amounting to some 25% in most of the batches tested, does escape into the urine soon after infusion. In one case it was possible to demonstrate that the dextran escaping into the urine was of lower molecular weight than the average of the dextran infused (cf. Bohmansson et al. 1946). It is clear that the greater the proportion of dextran of molecular size which will pass the glomerular filter, the less the value of dextran as a substitute for plasma becomes. On the other hand, Grönwall and Ingelman (1945a) have found that, if the molecular weight of dextran is insufficiently reduced during the stage of acid hydrolysis, the resulting product causes renal damage. Thus it is desirable to prepare dextran with a defined range of molecular size. Further, a uniform preparation is required if reproducible clinical effects are to be obtained. At present details of a specification are being worked out in collaboration with the manufacturers. Limits for the range of molecular size and for the mean will be defined by practical physicochemical tests; and there will probably be further biological criteria depending on injections into animals. Such a specification should ensure a standard of consistent physiological efficiency not hitherto attained in a fluid used for artificial resuscitation. In developing this specification it will probably be best to lower slightly the total content of sodium chloride and dextran; in the experiments on animals it was noted that restoration of blood-pressure was more rapid after dextran infusion than after blood-transfusion; and in the clinical trials a secondary rise in blood-pressure after the infusion of dextran was sometimes observed, suggesting that fluid was being drawn into the circulation.

Though dextran appears to possess the positive qualities required of a plasma substitute, one important doubt remains on the negative side—namely, the ultimate fate of dextran in the body. No evidence has been obtained to support or disprove the statements of Grönwall and Ingelman (1944, 1945a and b) that dextran is metabolised, probably as glucose. The experiments in which dextran was incubated with extracts and suspensions of liver and pancreas indicate that its degradation in the body is unlikely to be rapid. In rabbits injected with dextran, the dextran remaining in the body, after the excretion by the kidney of the material of small molecular weight, passes into the tissues, particularly into the reticulo-endothelial system. In the course of eight weeks, under the conditions of these experiments, the concentration falls gradually, but even at the end of this period dextran can still be detected by the serological method, especially in the lymph-glands and spleen, when it can no longer be detected in the plasma. This evidence suggests that dextran gradually disappears from the body, but a definite statement cannot be made until further experiments have been made to show whether its disappearance is complete.

Several possibilities regarding the fate of dextran in the body suggest themselves:

(1) The retained polysaccharide may be broken down slowly and metabolised as glucose. Swanson (1948) has shown that undegraded dextran is resistant to α and β amylase, muscle, and potato phosphorylase. The 1–6 linkage, which predominates in dextran molecules (Fairhead et al.

1938, Peat et al. 1939, Hassid and Barker 1940), appears to resist enzymic hydrolysis, or perhaps the configuration of the molecule is such that enzymic action is inhibited; but this does not necessarily mean that degradation in the body will not eventually take place.

(2) The retained polysaccharide may be slowly broken down to a molecular weight less than 70,000 and excreted by the kidneys.

(3) Part of the retained polysaccharide may be excreted after suitable degradation, the remainder being burnt as glucose.

The fate of the retained material is of great importance, for the ideal substitute for plasma should be completely metabolised or excreted. Until its fate in the body is known, dextran cannot unreservedly be recommended as a substance for intravenous infusion. With this proviso, a dextran solution with the characteristics described appears to be free from the disadvantages of other non-protein substitutes for plasma.

SUMMARY AND CONCLUSIONS

It is possible to prepare dextran with a range of molecular size similar to that of the plasma-proteins. The solution is well tolerated as an infusion by man and is not pyrogenic, toxic, or antigenic.

Such dextran, after infusion into animals and man, is only slowly removed from the plasma over about a week.

Dextran has proved efficacious as a plasma substitute in cases of burns, and has produced a sustained increase in the venous return in patients with surgical shock or hæmorrhage.

The dextran under trial has contained an appreciable proportion of material of such a molecular size that it passed the glomerular filter and could be recovered from the urine. In defining a specification for dextran for intravenous use it is clearly desirable to keep to a minimum the proportion of dextran of low molecular weight. It is probably also important to define the upper limit of molecular size.

There is still doubt about the ultimate fate of dextran in the body. Because of this, dextran cannot yet be unreservedly recommended for widespread use. Nevertheless, in the investigation made in this trial, it has not been shown to produce any harmful effect on the tissues, and further investigation is recommended.

We would like to thank Mr. W. Gissane, clinical director, Birmingham Accident Hospital, Mr. Dallas Ross, M.R.C. Burns Unit, and Prof. Ian Aird and Mr. R. H. Franklin of the department of surgery, Postgraduate Medical School of London, for permission to treat cases; and the East Anglian Chemical Co., Aycliffe, co. Durham, for their coöperation and the generous gift of dextran.

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EFFECTS OF AGENISED FLOUR ON MAN

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WHEN this investigation started, 'Agene' (nitrogen trichloride) had been in use as an improver for flour for over 25 years. No reports had been published, however, on the effect this process might have on the nutritional value of flour for man. In 1946, Sir Edward Mellanby showed conclusively that the agenisation of flour rendered it highly toxic to dogs. A further paper (Mellanby 1947) showed that ferrets were also susceptible to the toxin, and that this was associated with the protein of the flour. It therefore seemed worth while undertaking a survey to find out if any effects attributable to agenised flour could be detected in human beings.

Since the agene process has been current commercial practice for so long, it is improbable that it could be a direct cause of major illness; but, in view of the serious reaction produced in dogs, the lack of knowledge of the reversibility of any changes which might occur, and the absence of a suitable antidote, it was considered unethical to feed super-agenised flour to human subjects. It was therefore decided to compare a group of children fed on the current agenised flour with a group from whose diet all flour products treated with agene had been removed. With the coöperation of the local authority concerned such an investigation was undertaken in a residential school.

The sample on which the survey was made was not representative of the general population because almost all the children came from homes which were social failures; they were, however, free from gross physical or mental defects. To detect minimal changes a large homogeneous group was required. This was not available; the ages of the children at the school ranged from 2 to 15 years, they were of either sex and were diverse in their intellectual and temperamental potentialities, and about a third of them were admitted only for short periods. It was also important that the two groups should have the same psychological background. If the groups were under the care of different house-mothers or different masters, differences in behaviour, to be significant, would have to be unequivocably the result of organic lesions. There was left, eventually, a group of 80 boys aged 10–15 years, living in two houses, P and Q, but taking all their meals in one main dining-hall. These boys were paired for age and intelligence, and two groups were selected, both houses contributing half their inmates to each group. This artificial grouping only appeared at meals; at all other times the boys mingled indeterminately, either in class or house. Most of the observations were made on the children from these two houses, and the results reported refer to them unless otherwise stated. These two groups received identical diets, except that group A received flour agenised at 8 g. to the sack (3·2 g. per cwt.), and group X flour which had not been agenised. During the investigation, dietary surveys revealed no constant variation between the food intake of the two groups apart from the difference in flour. The remaining children in the school ate in their own houses and similarly received either agenised or unagenised flour.

The original plan of the investigation was to remove a group of children from the effects of agene for six months and then to compare them with a control group. Positive results were then to be checked by reversing

the diets for a further six months. At the end of the first period, however, no constant or significant differences were detected between the two groups, and it was decided to abandon the investigation. However, about this time it was discovered that the commercial treatment of flour sometimes reached the level of 12 g. to the sack (4·8 g. per cwt.). Further, though it seemed possible that the toxic action of agenised flour might be slowly cumulative, it was just as likely that, as with other organic pharmacologically active compounds, the subject might develop considerable tolerance. It was therefore decided to try the effect of agenised flour on the group that had lived for six months without it. Considerable difficulty was experienced in obtaining sufficient quantities of the flour agenised at 12 g. to the sack, and this part of the investigation lasted only six weeks.

It was impracticable to test all the children before the investigation proper began, and most of the tests were administered at the beginning and end of the main period. Subsequently, adequate control figures were obtained after the final switch-over. For the purposes of reporting and assessing the results the investigation has been divided into four periods:

(1) Before the separate diets started, June 12 to July 14.
(2) First part of the main period, July 15 to Dec. 20.
(3) Second part of the main period, Dec. 27 to March 10.
(4) Control period when the diets were reversed, March 11 to April 24.

NATURE OF INVESTIGATIONS

The knowledge that excessive doses of agenised flour in dogs cause ataxia, disorientation, and epileptiform fits together with hæmorrhagic lesions in the intestines, gave little indication of the effects that were to be expected in man. It was therefore decided to test as wide a range of functions as possible—i.e., growth, general health, coördination and motor ability, intellectual performance, and temperament and behaviour.

Growth

Before the experiment started, the height and weight of each child were recorded. During the investigation, except in two houses, each child was weighed fortnightly unless he was sick, on holiday, or absent without leave. Weights were recorded to the nearest ounce, without clothes, and at the same time of day. Weight gains and losses, besides reflecting growth and indicating general health, are unfortunately affected by many other factors, among which are age, initial weight, puberty, intercurrent illness, amount of exercise, hydration, attractiveness of diet, and climatic conditions. All these variables were present, and the total variability is so great that the detection of small differences between the groups becomes very difficult.

Two observations were reported. In houses P and Q a small group of 34 boys were paired for original weight, and their weight gain calculated for the main experimental period (2 and 3). The mean original weights were 5 st. 5 lb. 4 oz. for both the agenised-flour group and the unagenised-flour group. The former group gained on the average 6 lb. 1 oz. and the latter 8 lb. The difference is not significant ($t = 1·7$, $P > 0·1$).

After reversal of the diets, the mean daily gain for a month before and for a month after the change has been calculated for 151 children of either sex and various sizes. The difference in rate of gain between these two periods has been calculated for each child. Both groups showed a fall in growth-rate during the second period. For the 76 children changing from agenised to unagenised flour the rate fell from 0·590 oz. to 0·417 oz. a day ($d = 0·173$), whereas for the group changing to agenised flour the fall was from 0·648 to 0·261 oz. a day ($d = 0·377$). These differences between the groups are not significant ($t = 1·54$, $P > 0·1$). Agenised flour, therefore, has not been shown to affect weight increase significantly, either over eight months or after a sudden change of diet.

General Health

The children were examined clinically before the investigation started. Subsequently, records were kept of all those reporting sick. The examination, diagnosis, and treatment of these children remained in the hands of the school medical officer and his staff. These records were analysed to obtain the total number of minor infections contracted by each group. "Minor infections" included colds, sore throats, coughs, styes, and boils. No child was counted as having a second infection unless there had meantime been at least a week's clear health. There was no significant difference between the groups.

In addition to this analysis of the records, the children were examined on several occasions for changes in their deep reflexes and were also given short clinical tests of coördination and balance. No symptoms or signs were detected which could be attributed to intoxication with agenised flour. Dr. Bruce White kindly examined 57 specimens of fæces and detected no change in the predominant bacterial flora. Tests for occult blood were negative. Further evidence that the health of the children was not greatly impaired was provided by their performance in the agility test, for performance

TABLE I—RESULTS OF PSYCHOMOTOR TESTS

Test	No. of boys in group	Method of scoring	Standard deviation of scores (1st run)	Test and retest reliability (r)	First part of main period	Second part of main period	Control period
Tremor	R, 39 S, 34	No. of holes successfully negotiated in 9 attempts	6·3	0·70	R, 22·97 S, 21·18	R, 25·05 S, 21·68	R, 27·87 S, 26·67
Simple finger	R, 38 S, 34	No. of pegs turned in 35 sec.	3·7	0·59	R, 63·89 S, 62·53	.. ..	R, 73·57 S, 70·06
Triple tester	R, 39 S, 37	No. of successes	21·9	0·51	R, 82·85 S, 80·59	R, 113·18 S, 110·89	.. ..
Hand, foot, and eye coördination	R, 39 S, 38	No. of errors	12·9	0·68	R, 128·33 S, 126·28	R, 82·95 S, 83·22	R, 43·15 S, 46·06
Agility	R, 31 S, 27	Speed of performance (sec. taken for one run)	7·7	0·63	R, 97·57 S, 98·58	R, 95·88 S, 97·68	R, 97·71 S, 96·57
Beam	R, 37 S, 35	Endurance of test conditions (sec.)	71·8	0·53	.. ..	R, 126·41 S, 118·12	R, 124·70 S, 120·50

During both parts of the main period group R received agenised flour, group S unagenised flour. During the control period group S received agenised flour and group R unagenised flour. Results are expressed as the mean scores for each group. The difference between means is not shown in the table. In no case did this difference exceed a chance probability of 1 in 20.

on this test is readily affected by minor ill health (Frankau 1943).

Coördination and Motor Ability

In addition to clinical examination, a record was kept of the children's performance in organised games and sports. Members of the cricket, football, and swimming teams did not appear to be adversely affected by either diet. Nor did dietary factors play any part in determining the results of the annual sports. The children were also examined with a battery of psychomotor tests. These tests were selected to form a scale of increasing complexity. All of them have been described elsewhere; though the details of administration were varied to render them suitable for the children, this never materially altered the character of the tests. The tests used were:

TABLE II—RESULTS OF INTELLIGENCE TESTS

Group of children	Mean standardised score in:	
	Jenkins non-verbal intelligence test (June, 1947)	Raven's matrices (December, 1947)
R: 30 children receiving agenised flour	96·3	96·3
S: 22 children receiving unagenised flour	93·4	91·9

Test-retest correlation for both groups: r = 0·67.

(1) Tremor test of hand steadiness. This consisted of passing a rod 3 mm. in diameter through holes of various sizes without touching the side. For a detailed description of a similar test see Halstead (1947).
(2) Simple finger dexterity (R.A.F.*).
(3) Hand and eye coördination: triple tester.†
(4) Hand, foot, and eye coördination: S.M.A. 3 (R.A.F.*).
(5) Agility (Frankau 1943).
(6) Beam test (Milligan 1934). In this test the subject hangs for as long as possible from a beam.

In testing the children it was not possible to see that every child did each test every time. To take only those children who underwent all the tests would make the groups very small. On each test, therefore, the results reported are for a group of children who were present every time that particular test was repeated. The children coöperated extremely well in the tests; their association with pilot-selection was emphasised, and they were presented on a competitive basis. In practically all the children excellent motivation was obtained. On the second occasion that the beam test was used additional rewards were offered, but only a slight increase in motivation was noted.

The results of these tests are as follows: on most of the tests the group receiving agenised flour was definitely superior, but the differences between the mean scores of the two groups never reached a statistically significant level. It is worth noting that, on repeated testing, the group receiving agenised flour generally showed the most improvement. The average improvement for each group was calculated, but again the differences never reached an acceptable level of significance. To estimate the significance of the differences between means the t test was used (Fisher 1946). The results of those tests are presented in table I.

Intellectual Performance

Before the experiment started, the children were given a formal group test of intelligence. Cheating was rigorously precluded. Six months later another test was administered. Since many of the children could neither read nor write with much facility, tests were chosen which had no written verbal element. The two tests finally used were the Jenkins non-verbal test of mental ability (Jenkins 1947) and Raven's matrices (Raven 1940). There was no impairment in either group. The results of these tests, expressed as mean standardised scores (equivalent to an intelligence quotient), are given in table II.

Temperament and Behaviour

Considerable difficulty was encountered in obtaining objective evidence of changes in temperament and behaviour. The results of the formal tests would be affected by any gross increase in irritability, distractability, or impaired concentration, but no such effect could be detected. However, none of these tests can be described as primarily a test of temperament. The beam test and the agility test seem those most likely to be affected by poor coöperation, and both these tests were, if anything, accomplished better by the children receiving agenised flour. Ratings of behaviour in class, which were kindly carried out by the teaching staff, merely revealed the chronic offenders, and did not show any difference between the two groups.

The most objective investigation practicable in this field is an analysis of the school record of punishment for boys in houses P and Q. Taking those boys present from the beginning of 1947 to the end of the investigation, both groups figured equally in the record. During the main period (2 and 3) and the control period (4) the agenised group appeared more frequently. More detailed analysis revealed, however, that the change in behaviour between the two groups took place before the change in diet. Further, many of these offences occurred in the main dining-room, and here the two groups appeared as psychologically significant ones.

TABLE III—DIETARY RECORDS

—	On agenised flour	On unagenised flour
Protein (g.)	81	76
Fat (g.)	101	99
Carbohydrate (g.)	338	310
Calories	2750	2610
Calcium (mg.)	929	856
Iron (mg.)	19	19
Vitamin A potency (I.U.)	8473	9237
Vitamin B (µg.)	1090	1018
Vitamin C (mg.)	50	50
Percentage of calories from flour products	46·1	43·8
Percentage of protein from flour products	51·0	48·2

Nov. 3–9, 1947, inclusive. Average intake daily of boys.

Dietary and Biological Controls

On four occasions during the test a careful analysis of dietary intake was made for each group. These analyses each covered a period of fourteen days. No constant differences were detected between the intake of the two groups, and the values were well above those accepted as the minimum requirements for children of this age-group. About 45% of the calories and about 50% of the total protein came from flour. Table III gives the results of a week's dietary survey. To check any possible error in the distribution of the two diets, samples of bread and flour from each batch were submitted for animal experiments. The untreated flour remained free from toxic action. The toxicity of the treated flour varied considerably but it generally caused severe symptoms in animals.

ADDITIONAL STUDIES

As the results of this survey were essentially negative, two adult volunteers undertook to live on a highly

* The material for these tests was kindly lent by the Air Ministry Training Research Division, from whom further details may be obtained.
† Kindly lent by the Department of Psychology, Cambridge University.

agenised diet under constant medical supervision. A diet was devised in which the major part of both calorie and protein intake was derived from flour. All flour products were prepared from flour which had been treated with agene at the rate of 24 g. to the sack (9·6 g. per cwt.).

In addition to daily clinical observation, physiological and psychological investigations were repeated regularly. These included blood-count, erythrocyte-sedimentation rate, urinary and fæcal examinations, and blood-urea estimations on alternate days. At the end of the investigation tests of liver function were performed. Electro-encephalograms were recorded twice a week. None of these investigations revealed any change in physiological function.

The electro-encephalogram findings are of interest. The original record of one subject showed an abnormality (generalised outbursts of mixed frequencies, chiefly 6–10 cycles per sec.). This would have been consistent with a history of epilepsy, but no such history was obtained. During the consumption of agenised flour the abnormality persisted but showed no exaggeration. The electro-encephalogram of the other subject remained normal throughout.

During the investigation the subjects underwent psychomotor tests twice a week. Those used included triple tester, simple finger dexterity test, and Kohs blocks. No abnormality was detected in their approach to, or behaviour in, the test situation, and the scores obtained gave a typical learning curve.

In these two subjects no toxic effect was detected over a period of eight weeks.

SUMMARY AND CONCLUSIONS

The original intention of this investigation was to compare children from whose diet agenised flour had been excluded with children receiving flour agenised at the current commercial rate. After eight months no differences were detected.

Shortly before the investigation closed, supplies of flour agenised at 12 g. per sack became available. The effect of a diet prepared from this flour was tried on the children who had so far been free of agenised flour for eight months. Immediately after the change most of these children did not maintain their normal weight increase; but, on the other hand, their performance on the psychomotor tests was better. These changes do not reach a level of statistical significance, and their relation to the change in diet is not clear.

The children ate on the average 340 g. of flour a day. This represents about half their daily intake of calories, protein, and carbohydrate.

Two adult volunteers lived for eight weeks on a diet containing flour agenised at 24 g. to the sack, their average daily intake of the treated flour being 360 g. No impairment was noted in either physiological or psychological functions.

These results are in agreement with those obtained in America by Newell et al. (1947), who detected no changes in man. In their investigation five persons received 105 g. of wheat products a day for 14–28 days, with 3–20 g. of agene per cwt. of flour. They mention, however, that more detailed studies are shortly to be published.

Thus it is fair to conclude that the effects of commercially agenised flour on man is difficult to detect. It may be harmful, beneficial, or inactive.

This survey could not have been undertaken without the friendly coöperation of a large number of people. We wish especially to acknowledge the assistance of the headmaster, together with all his staff, the local authority, and the Ministries of Health and Food. We received technical assistance from, among others, Dr. Bruce White, at the National Institute for Medical Research, Mr. J. Done, of the Human Nutrition Research Unit, and Dr. J. N. Cumings, of the National Hospital. Dr. Margaret Ferguson kindly assisted with the psychological tests, and Dr. J. Billings, Dr. R. H. Fox, and Dr. Dean A. Smith with the clinical examinations. During part of the investigation Miss C. Searle S.R.N., assisted with the care and observation of the children. We are indebted to the continual interest and advice of Dr. E. A. Carmichael, Prof. B. S. Platt, and Dr. Eliot Slater. To Sir Edward Mellanby, who kindly arranged the animal controls, we are also indebted for considerable criticism and advice. Finally, without the willing coöperation and technical ingenuity of the millers such an extensive investigation would not have been possible.

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MORBIDITY AND FEEDING IN INFANCY

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SEVERAL years ago Dr. H. K. Waller suggested that the reason why the great superiority of the breast-fed child was not more widely recognised among doctors was that the doctors seldom saw any. Comparative morbidity-rates in breast-fed and bottle-fed infants have not been readily forthcoming, because they have been sought by workers in hospitals, whereas they should have been gathered by general practitioners.

Smellie [1] analysed a series of infants with enteritis. Of those who had been breast-fed for a month or more 25·9% died, whereas of those who had never been breast-fed 70·6% died.

Ebbs and Mulligan [2] showed that the proportion of children admitted to hospital were: breast-fed 15%, partially breast-fed 29%, and artificially fed 56%. These figures were in striking contrast with those derived from healthy children in the infant-welfare clinics of the same area, of whom only 29% were artificially fed.

Gairdner [3] investigated the early history of a series of babies admitted to hospital with enteritis. At the time of admission all were over a month old, and all were artificially fed. Of the 39 who had been breast-fed for a month or more 28% died, whereas of the 60 who had been breast-fed for less than a month 55% died.

The weakness of all these figures lies in the total subjected to analysis—a total which cannot be securely related to the general infant population of any area. Recently I have analysed 100 cases in my own practice to determine the number of domiciliary visits required for illness—other than notifiable diseases and accidents—during the first year of life. The number represents the total deliveries in the practice between certain dates. The following table analyses the data:

	No. of cases	*No. of visits*	*Average per child*	*No. not requiring any visit*
Breast-fed beyond 3 months	67	93	1·39	49 (73%)
Breast-fed beyond 1 month but under 3 months	12	53	4·42	3 (25%)
Artificially fed at or before 1 month	21	136	6·48	2 (9·5%)

I consider that these figures give a real indication of morbidity-rates, because they refer to an unselected series.

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2. Ebbs, J. H., Mulligan, F. *Arch. Dis. Childh.* 1942, **17**, 217.
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CLINICAL ESTIMATION OF BASAL METABOLIC RATE

THE RP INDEX

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THE main inconvenience of determining the basal metabolic rate (B.M.R.) by gas analysis lies in the necessity of keeping the patient strictly at rest and in the desirability of really accurate apparatus. Even under the best possible conditions normal readings fall within a wide range. Moreover, serial determinations to judge the efficacy of treatment are very time-consuming.

Several clinical methods requiring no apparatus have been described. The most useful of these, according to László and Horvátth (1941), are the Read II and Boothby methods. The Read II formula (Read 1922, 1924) is :

B.M.R. % (± normal) = 0·75 (pulse-rate + 0·74 pulse-pressure) − 72.

The Boothby formula is :

B.M.R. = pulse-rate × pulse-pressure.

The B.M.R. here is expressed as an index, the normal range being 2000–4000.

The methods based on gas analysis depend on the determination of the quantity of oxygen consumed during the period of observation. Patients with a B.M.R. above normal consume an abnormal quantity of oxygen. They also have a raised pulse-rate and respiration-rate. Conversely, in conditions with a low B.M.R. the pulse and respirations are usually slowed.

Kósa (1942) elaborated the following formula, which makes use of both pulse-rate and respiration-rate :

B.M.R. % (± normal) = 1·25 (pulse-rate + respiration-rate) − 116.

My experience with this formula (Bene 1943) in 100 consecutive patients led me to conclude that it did not correspond to the results obtained by the Krogh method. The error lies in the arithmetical structure of the formula, since patients with a B.M.R. raised above 15% (Krogh) did not show a corresponding increase by the Kósa formula. I have found, however, that by simply multiplying the pulse-rate by the respiration-rate an index is obtained which is a more reliable guide. This "RP-index" formula is :

B.M.R. = respiration-rate × pulse-rate.

The B.M.R. is expressed as an index—e.g., normal pulse-rate (72) × normal respiration-rate (18) = 1296. The normal range is 1100–1500; below 1100 the index indicates decreased, above 1500 increased B.M.R.

A series of 100 patients were investigated by the Krogh method, and at the same time the clinical data required to apply the Read II, the Boothby, the Kósa, and the RP-index formulæ were obtained. The table shows the degree of correspondence between these different methods and the Krogh method :

Krogh	No. of patients	Correspondence with Krogh (%) Read II	Kósa	Boothby	RP index
Above + 15%	43	23	33	33	67
Between +15% and − 10%	48	91	58	85	70
Below − 10%	9	60	100	40	70

The chief advantage of the RP index lies in its simplicity and its reasonable degree of correspondence to the Krogh method. It can usefully be applied during the clinical examination of a patient, and serial estimations can easily be carried out by this method in the treatment of hyper- and hypo-thyroidism.

To obtain the pulse-rate and respiration-rate the patient should lie quietly for five minutes before the investigation and should be unaware that his respiration-rate is being counted, for otherwise the rate will rise materially.

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Preliminary Communication

ACTION OF NORADRENALINE AND ADRENALINE ON HUMAN HEART-RATE

NORADRENALINE (arterenol) differs from adrenaline in having no methyl group; it must not be confused with its isopropyl derivative, 'Aleudrine.' Its pharmacology has been extensively studied (West 1947, 1948),[1] but for many years noradrenaline was thought to be only of academic interest since it had never been found in the body. More recently, however, von Euler[2] has demonstrated a noradrenaline-like substance in various normal tissues, and Holton[3] has extracted it from a human adrenal tumour. Noradrenaline may even transmit certain nerve impulses chemically.[4] It is therefore important that its actions on different organs should be carefully compared with those of adrenaline. An investigation into the effect of noradrenaline and adrenaline on the blood-flow in the limbs afforded an opportunity for us to compare their actions on the heart-rate and arterial blood-pressure, with interesting and unexpected results.

METHOD AND RESULTS

Normal men and women aged 20–45 were the subjects of the study. A saline drip was set up, with the needle in one of the antecubital veins, and the heart-rate and blood-pressure were noted every minute or so. After about 10 min. the saline was turned off and an infusion of noradrenaline or adrenaline was given (usually at the rate of 10–20 μg. per min.) for 3 min., during which the heart-rate and blood-pressure were recorded at ¼ min. intervals. After the infusion readings were continued, though less frequently, for about 10 min., and then the other drug was infused as above. In some

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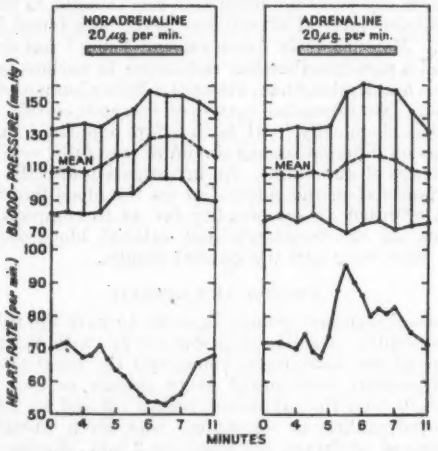
ACTIONS OF ADRENALINE AND NORADRENALINE ON HEART-RATE

Subject	Rate of infusion (μg./min.)	Maximal change in heart-rate per min. during 3 min. infusion: Adrenaline	Noradrenaline
1	5	+45	+7
	15	+42	−12
2	10	..	±6
	20	+28	..
3	10	+40	−12
	10	+12	..
	20	..	−12
	20	+33	−12
4	10	+30	−12
	10	+40	..
	20	..	−24
	20	+45	−21
5	30	+30	−18
6	10	+35	−10
	10	+18	−16
	20	+46	−12
	20	+21	−27
7	10	+27	−6
	10	+12	−18
	20	+36	−9
	20	+13	−13

experiments the noradrenaline was given before and in some after the adrenaline.

In the body noradrenaline is present as *lævo*-noradrenaline,[5] and the lævo form was used in these experiments. The adrenaline solutions were made from 1 ml. ampoules of 1 : 1000 *l*-adrenaline hydrochloride (B.D.H.).

The table shows the remarkable difference in the actions of adrenaline and of noradrenaline on the heart-rate, adrenaline causing tachycardia and noradrenaline bradycardia. This is also seen in the figure, which shows the averaged results of all the 20 μg. per min. doses of adrenaline and of noradrenaline on the heart-rate and on the arterial blood-pressure. The partial subsidence of the adrenaline tachycardia during the course of the infusion was noted by Allen, Barcroft, and Edholm.[6] Subjective effects during the adrenaline infusions included



Arterial blood-pressure and heart-rate before, during, and after intravenous infusion of noradrenaline and of adrenaline; averaged results.

mild palpitation, hyperventilation, tightness in the chest, and muscular fatigue. There were usually no subjective sensations during infusions of noradrenaline.

DISCUSSION

The explanation of the different action of adrenaline and of noradrenaline on the heart-rate is not known. Two factors are probably concerned—the direct excitatory action of the drug on the pacemaker; and its reflex inhibitory action due to its pressor action on the vascular system.

SUMMARY

Noradrenaline, which differs from adrenaline in having no methyl group, has been found in various tissues including an adrenal tumour. It may be a chemical transmitter of sympathetic nerve impulses.

The actions of intravenous infusions of noradrenaline and of adrenaline on the heart-rate and arterial blood-pressure have been observed.

In doses of 10–20 μg. per min. noradrenaline causes bradycardia whereas adrenaline causes tachycardia.

We are grateful to Dr. H. J. Swan, research fellow of St. Thomas's Hospital, for valuable assistance. We also thank the subjects for their coöperation, and the Sterling-Winthrop Research Institute for a supply of *l*-noradrenaline to H. K.

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Medical Societies

ROYAL SOCIETY OF MEDICINE

Streptomycin in Tuberculous Meningitis

THE neurological section of the Royal Society of Medicine, with Dr. WILLIAM JOHNSON, the president, in the chair, on Jan. 6 held a symposium on the streptomycin treatment of tuberculous meningitis.

Sir HUGH CAIRNS and Dr. MARGARET TAYLOR reported on 49 cases (47 were proved bacteriologically) treated with this drug at the Radcliffe Infirmary and Military Hospital for Head Injuries. Of these, 20 had died—14 within three months of the commencement of treatment, 4 within six months, and 2 thereafter.

One example of successful treatment was a youth who was ill in bed for 8 months, in hospital for a further 6 months, and returned to work 2 months later. Streptomycin had been continued for 8 months, with 101 days' intrathecal administration. Cultures of the cerebrospinal fluid (C.S.F.) were positive sporadically up to the 27th day of treatment, and an attack of acute arterial hypertension developed on the 70th day. The cell-count and protein in the C.S.F. did not return to normal until 20 months. This patient had been back to work for 7 months, and the only residuum of his illness was complete amnesia for the first 4 months in hospital and the 5 months before his admission.

Sir Hugh Cairns emphasised the chronicity of the condition, and indicated the necessity for prolonged treatment. Their cases had received streptomycin by the intramuscular route for 6 months or more and intrathecally for 6 to 12 weeks. In this respect they differed from the practice at some other centres where various intrathecal courses were interspersed with rest periods; but he felt that each centre should persevere with one particular type of treatment in order to give it a fair trial. Any regression in the clinical condition, or late positive films or cultures, called for prolongation of intrathecal treatment. When the acute phase was past, the possibility of surgical measures should be considered with a view to eliminating other foci of tuberculous infection. As with tuberculosis elsewhere in the body, the tuberculous process in the meninges called for lengthy observation after treatment was completed.

Some hydrocephalus developed in all the cases, and in many was proved by air encephalograms. In only 2 could this be attributed to complete obstruction by the basal exudate; the remainder had "replacement" hydrocephalus. For ventricular therapy burr-holes were made as a routine. These could then be used for continuing treatment if spinal block developed, or to rest the lumbar region in prolonged intrathecal courses; he regarded this route as less dangerous than the cisternal.

Regarding the general prognosis, their figures showed that patients with miliary or adult type of pulmonary tuberculosis did much worse than those relatively simple cases where a previous active lesion had been overcome. From a survey of published results he thought that the recovery-rate lay somewhere between 10% and 50% in different centres, and that with experience these figures would be improved upon. Results in the treatment of children under seven years of age were entirely comparable with those in other age-groups. He ended with a plea that the more general availability of streptomycin should not cause cases to be deflected from the centres which already have considerable experience of this work until the best methods of treatment have been decided.

Dr. P. M. DANIEL, discussing the morbid anatomy, said that one of the changes seen as a result of streptomycin treatment was a tendency for the conversion of the gelatinous exudate into one of woody hardness. This was due to the chronicity of the disease and not to streptomycin. This exudate caused interference with the C.S.F. circulation and affected the arterial system. Much had been written about the basal exudate and not enough about its extensions throughout the subarachnoid space. The arterial changes often led to infarction of the basal ganglia and the mid-brain, among other areas. Transient dementias might be attributable to an encepha-

litis. Active foci in the depths of the sulci, he suggested, might well be the source of reinfection and relapse.

Dr. I. DONIACH confirmed from the histologist's viewpoint that nothing new had emerged as the result of streptomycin treatment. The changes in the histological appearances were due to prolongation of the life of those with the disease; in sections from untreated cases of meningitis he was able to demonstrate all stages of arteritis to the complete obliteration of the lumen which is seen after long streptomycin treatment.

Dr. I. A. B. CATHIE pointed out that rapid return to normal of the C.S.F. constituents was often seen after far shorter periods of treatment than those named by Sir Hugh Cairns. Chlorides in the C.S.F. were an unreliable guide: the behaviour of the C.S.F. sugar content was probably the most reliable diagnostic and prognostic index. He drew attention to the possibility of using adjuvant measures of therapy; he himself had been trying, with promising results, a fibrin-solvent prepared from streptococci.

International Tensions

At a joint meeting of the psychiatry section with the British Psychological Society on Jan. 11, with Dr. J. R. REES in the chair, a discussion was held on the tensions affecting international understanding.

Dr. OTTO KLINEBERG, who directs the division of UNESCO's department of social sciences which is working in this field, said that research was proceeding along five principal lines: (1) the distinctive character of the various national cultures, knowledge of which might be a major factor in international understanding; (2) the notions that one nation had about another (the so-called stereotypes); (3) methods of attitude change (for example, the relation of prejudice in teachers to prejudice in children); (4) influences predisposing to international understanding on the one hand and to aggressive nationalism on the other; and (5) the relation of intranational tensions, and particularly of minority problems, to international relations.

Understanding, he said, might be intellectual (in the sense of knowledge) or emotional (denoting friendliness); and though possibly unrelated, both were relevant. Tension he defined as a state of strain, tending to give rise to action which was often hostile or aggressive. Were personal tensions responsible for international tensions? He made no such assumption. Nevertheless, the individual's mental health and his attitude to the outside world were related, and there was a significant positive association between personal tensions (particularly with a sense of insecurity) and hostility to "foreigners." Moreover, there tended to be a generality of hostility; the man who expressed animosity against one nation usually felt the same way about others.

In whose minds did war begin? So far the work had been concerned with the masses rather than with leaders, but the attitude of the masses was relevant to leadership. As a psychologist, he confessed that the research had hitherto shown a bias towards psychological investigation; historical, economic, and political factors must also be studied. What was being done about the real tensions? The difficulties here were great; and he had failed to get together experts from every nation. "Every time we come across a real tension we are told that it is too hot to handle." However, his division had been asked to study the relationship of India and Pakistan.

The project had value as a central rallying-point for social scientists, psychologists, psychiatrists, and others. Only when enough information had been collected would this be passed on to educationists.

Dr. JOHN RICKMAN complained that group tensions had hitherto been studied mostly from without; research-workers who went into the group with their own questions were liable to miss the mark, for the character of tensions had to be discovered from within. To his knowledge, each of two groups of experts studying international tensions had refused first to submit to analysis of their own tensions; and it was hardly surprising that other investigators had been told that current international tensions were "too hot to handle." Possibly the first object of group studies should be to investigate resistance to examination within the group. "Is the study of tensions within the group more distressing than war?"

Prof. T. H. MARSHALL pointed out that UNESCO is an international body. The research project called for coöperation and objectivity, so certain issues were ruled out; the workers engaged in it could not report on matters sub judice. He expressed particular interest in the compulsive influences which seemed to lead men in key positions to do something which they apparently did not want to do.

Dr. H. V. DICKS pointed to the worth of the project in research, training, and therapy. International tensions, though on a large scale, did not involve, in his view, any new concepts.

Mr. E. A. SHILS complained that psychologists tended to explain great events from a single impulse—aggressiveness. There was woeful unpreparedness for analysing élite behaviour.

Dr. ERNEST JONES suggested that the project did not come close enough to grip with the major problem. It had a mild name: what was really under review was enmity or hostility, including hostility of the individual to himself. It was popularly held that international troubles started through fear; but fear did not start of itself—it always had an object. History showed that aggressiveness was greater on one side than the other. In the last 2000 years waves of aggressiveness and expansion had touched most of the great nations and then passed on. What tensions had arisen to cause these waves? The historian should lay the facts before the psychologist, in an attempt to discover any helpful generalisation.

Reviews of Books

Viral and Rickettsial Infections of Man

A Symposium. Editor: THOMAS M. RIVERS, M.D., Rockefeller Institute for Medical Research. Philadelphia and London: J. B. Lippincott. 1948. Pp. 587. 45*s*.

KNOWLEDGE of the viruses and rickettsiæ has recently grown so fast that it has been difficult for any author to produce a book that would not be out of date before it appeared on the bookstands. Moreover, until recently, controversy has reigned over many of the fundamental properties of viruses. Dr. Rivers and his 26 American associates think that knowledge has now become sufficiently stable, and opinions sufficiently harmonious, to justify the symposium they offer us. Many of them have themselves added to knowledge of their subjects: for example, M. Theiler writes on yellow fever, H. A. Howe on poliomyelitis, W. M. Stanley on the chemical and physical properties of viruses, and K. F. Maxcy on epidemiology. The brief general introduction, by Rivers, could with advantage have been enlarged. The book has enough emphasis on the clinical aspect, diagnosis, and treatment to justify the claim that it is written for students and practising physicians; and it is remarkably readable. But it is not so much a simple review as a comprehensive work. Indeed its value may be greater to those engaged in actual work on viruses, since they will have the background essential for perspective.

To those with less special knowledge, F. L. Horsfall's three chapters on the common cold, primary atypical pneumonia, and influenza may convey a somewhat false impression of our understanding of virus diseases of the respiratory tract as a whole; for though the chapter on influenza is a model, particularly in setting out the properties of the influenza viruses, the absence of any account of the unsolved problem of acute respiratory disease not due to these viruses suggests an omniscience we do not possess. The reader may conclude that all that is neither influenza nor the common cold must be primary atypical pneumonia; but the multitude of viruses claimed to be the causal agent of this syndrome may well depress rather than enlighten him. The list of animals pressed into use in the investigation of primary atypical pneumonia includes twenty species, but the striking success of influenza and the ferret has not been repeated.

Separate chapters deal with the typhus fevers (epidemic and murine), the spotted-fever group, including the newly described rickettsial pox, scrub-typhus, and Q fever. Snyder's chapter on typhus is a balanced account of disease and causative agent, with proper emphasis on history and on control measures; chloromycetin had apparently not reached the stop-press in time for typhus fever but it figures in the account of scrub-typhus.

By any standards this book is lavishly produced, and its moderate price is due to assistance from the American National Foundation for Infantile Paralysis.

Vision and the Eye

M. H. PIRENNE, DR.SC. Liége, PH.D. Camb., Imperial Chemical Industries research fellow, University of London. London: Pilot Press. 1948. Pp. 187. 12*s*. 6*d*.

Dr. Pirenne writes about the physiology and physiological optics of the eye from the standpoint of the scientist rather than of the clinician. His book is intended for the non-specialist reader, though it demands some knowledge of physics, chemistry, and mathematics. Subjects covered include the formation of the retinal image, the structure and function of the retina, colour-vision, the nervous activity produced in the eye, and the eyes and vision of insects. For doctors, at any rate, the information would have been more interesting if it had been linked to clinical signs and symptoms; a description of such phenomena as fatigue, adaptation, and accommodation with relation to the sight would have been welcome. Nevertheless, this is a useful work and puts in an attractive and straightforward manner the facts behind the function of vision.

Diagnostics pratiques

NOEL FIESSINGER and 19 collaborators. Paris: Masson. 1948. Pp. 656. Fr. 1200.

As Prof. A. Lemaire says in his preface, this book is the last message from Noel Fiessinger, so long a clinician at the Hôtel-Dieu in Paris. It is conceived on an ample scale, and achieves a uniformity remarkable in the combined work of some twenty authors. To the English reader it offers a valuable survey of French medicine, and the somewhat novel method of presentation will appeal to him. Of the eleven large chapters each is subdivided into major symptoms or signs; thus the second chapter, on general processes, deals with fatigue, wasting, obesity, glycosuria, œdema, and prolonged and periodic fever. For each subject there are three headings —Les Reconnaître, Les Distinguer, and Les Expliquer. It is from such diagnosticians as Fiessinger that the beginner in medicine learns that diagnostic errors are less often due to ignorance than to lack of care in examination, and lack of thought, time, and common sense. The book does not touch on laboratory or radiological examinations, but it is a thoroughly practical textbook of bedside medicine, so well presented that one is hardly conscious of the absence of illustrations. It will be a lasting memorial to its senior author.

Sterility and Impaired Fertility

(2nd ed.) C. LANE-ROBERTS, C.V.O., M.S., F.R.C.S., F.R.C.O.G.; ALBERT SHARMAN, M.D., M.R.C.O.G.; KENNETH WALKER, M.B., F.R.C.S.; B. P. WIESNER, D.SC.; MARY BARTON, M.B. London: Hamish Hamilton Medical Books. 1948. Pp. 400. 24*s*.

NEARLY ten years have elapsed since the publication of the first edition of this useful book. It is perhaps depressing to reflect how little the past decade has added to our positive knowledge of, or power to treat, sterility in either sex.

The general arrangement of the book has not been materially altered but the contents have been revised. After a general survey, the next five chapters are devoted to male infertility, clinical examination, coital technique, the characteristics of semen (including methods of collection, examination, and evaluation), the physiology and pathology of the male reproductive mechanism, and treatment. More emphasis than hitherto is laid on the importance of dealing with infections, both local and remote; the gonadotrophins are still recommended (though in somewhat larger doses) in the treatment of azoospermia and lesser degrees of deficient spermatogenesis, though their value, judging by a short series of cases quoted, remains uncertain. In the second half of the book, infertility factors in women, the treatment of female infertility, and artificial insemination both with husband's and donor's semen, are discussed. The section on the cervical factor and the assessment of its normality or otherwise by means of post-coital tests and invasion tests in vitro has been brought well up to date. There are a few surprising omissions: no mention is made of Mann's work on fructose in semen, nor of the administration of progesterone by means of implant.

Several new and valuable appendices have been added, notably those on the technique of the Sims and invasion tests, basal temperature charts, and X-ray and diathermy therapy.

Lehrbuch der Augenheilkunde

Editors: M. AMSLER, Zürich; A. BRÜCKNER, Basle; A. FRANCESCHETTI, Geneva; H. GOLDMANN, Berne; E. B. STREIFF, Lausanne. Basle: S. Karger. 1948. Pp. 858. Sw. fr. 85.

THIS book arose out of the Swiss need for textbooks during the war, when works from abroad were not to be had. The five editors held the five chairs of ophthalmology in Switzerland, and they have had the assistance of twelve Swiss colleagues and of Prof. H. Weve of Utrecht. It follows fairly closely the usual treatment of ophthalmology in textbooks, except that it has an extensive introductory section dealing, among other things, with general symptomatology, heredity, social aspects, and therapeutic principles, and a concluding section on general aspects of ophthalmology. As might be expected from the panel of contributors, the teaching is both orthodox and authoritative; but it shows local colour, particularly in methods of treatment, and has a welcome freshness of outlook. As a student's book it could hardly be better.

Nuts (London: Faber. 1948. Pp. 264. 18*s*.).—This book, by Mr. F. N. Howes, D.SC., principal scientific officer at Kew, is extremely useful for reference, and will be a godsend to vegetarians whose diet is naturally somewhat lacking in concentrated foodstuffs. It is well written, authoritative, and well produced. It should call further attention to a much neglected source of food.

A Practical Manual of Diseases of the Chest (3rd ed. London: Oxford University Press, 1948. Pp. 670. 50*s*.).—Dr. Maurice Davidson has brought this manual up to date by drastic revision of the sections on the pathogenesis of bronchiectasis, the chemotherapy of lung inflammation, silicosis, and extrathoracic new growths. Recent advances in tuberculosis of the lung have also been included. Two fresh chapters on cysts of the lung and pleura and on sarcoidosis have been added. There is a considerable number of new illustrations, which are of a high standard of excellence. This well-balanced and readable account of the subject has now become a standard work for practitioners and senior students.

Emergency Surgery (6th ed. Parts I and II. Bristol: J. Wright. 1948. Pp. 388. 21*s*. each part).—During the eighteen years since the first edition of this book was published many young surgeons have been indebted to Mr. Hamilton Bailey for his clear and practical advice in the problems of emergency surgery. Their successors will welcome this new edition, and others more senior will perhaps be glad to refresh their memory about conditions which they rarely encounter. The two parts so far published deal with some general matters, including infusion, transfusion, and anæsthesia, and with the abdomen. Mr. Bailey's technique is effective: he is concise but sufficiently detailed to give the inexperienced surgeon all the guidance he can get from a book—and that is nearly as much as he needs. The advice is definite, but alternative methods of treatment are not entirely neglected. Illustrations are plentiful and strictly relevant, while sample case-histories, succinctly reported, bring the general text sharply into focus. The accent throughout is on treatment; and comparatively little is said about diagnosis, though its importance is stressed in several places. This is a defect, but it may be that to deal adequately with diagnosis would have doubled the size of the book, and to deal with it inadequately would have been worse than useless. The issue of the book as a serial in five parts is tiresome for the reader, who will probably not be consoled by the reasons given in the preface.

THE LANCET

LONDON: SATURDAY, JAN. 22, 1949

Substitutes for Plasma

APART from the introduction of gum-acacia by W. M. BAYLISS during the first world war, little effort was made until the second world war to prepare artificial fluids that could be infused to restore the volume of the circulating blood. In the '20s and '30s whole blood was used for this purpose in slowly increasing quantities, and in the middle '30s human plasma and serum were employed in Russia and America for the treatment of "shock"; but it was not until 1939 that the demand for blood and plasma became so great that the question of substitutes was reopened. Today in Great Britain we have the transfusion services developed during the war, and the provision of plasma is part of their work. So long as blood-banks remain a feature of hospitals, there will always be time-expired blood to use as a source of plasma; and the risk of plasma transmitting homologous serum jaundice can probably be overcome by its irradiation with ultraviolet light.[1] Yet, even so, there are occasions in this country in peace-time when a substitute for plasma would be useful, and it would have great value abroad wherever plasma is unobtainable or is liable to deteriorate. Its possible importance in time of war is obvious.

Most of the substances proposed and tested have failed to meet one or more of the theoretical requirements of a plasma substitute set out by Dr. BULL and his colleagues in our present issue. Gum-acacia was suspect before the late war. Of the many other substances investigated—pectin, gelatin, bovine albumin, bovine plasma and serum, isinglass, methyl cellulose, polyvinylpyrolidon, polyvinyl alcohol, ascitic fluid, and the glucose polymer dextran—all seem to have disadvantages, except perhaps the last, which is now receiving closer attention. Though its possibilities were considered in England early in the war, the credit for producing dextran in a form suitable for infusion belongs to the Swedish workers GRÖNWALL and INGELMAN,[2] BOHMANSSON et al.,[3] and Dr. THORSÉN whose latest paper we publish this week. Dextran is now freely used in Sweden, where there is no nation-wide transfusion service, and, judging by published reports, experience has been uniformly favourable. Corroboration is now provided by the results of a laboratory and clinical trial of British-made dextran, by Dr. BULL and his colleagues, showing that it is a bland, non-toxic, non-antigenic fluid which, in cases of burns and in subjects suffering from "shock" or hæmorrhage, appears to be as beneficial as plasma. It seems to fulfil the theoretical requirements with the single exception that its disappearance from the body is probably slow. Whether it is completely metabolised as glucose, or whether it is broken down to a lower molecular weight and slowly excreted, remains to be seen. GOLDENBERG et al.[4] have reported histological changes in the kidneys—apparently temporary—after its use, but they do not clearly define the type of dextran they infused; and introduction of dextran into animals in quantities larger than any likely to be given to human beings has caused no such changes. Dextran molecules smaller than 70,000 are excreted within a comparatively short time, and it is possible that, where renal function was already depressed, the added excretory load thus imposed might be dangerous. This possible drawback might well be overcome if dextran could be prepared, as Dr. BULL and his colleagues suggest, without the small molecular fraction.

One of the great merits of dextran is that it can probably be manufactured to conform closely to the ideal specification of an artificial substitute for plasma. We hope, therefore, that the more extensive trial proposed by the British workers will be carried out, so that the fate of dextran in the body, and any remote harm it can do, may be fully revealed. Its keeping qualities under tropical and other climatic conditions also need investigation.

1. Blanchard, M. C., Stokes, J., Hampil, B., Wade, G. R., Spizizen, J. *J. Amer. med. Ass.* 1948, **138**, 341.
2. Grönwall, A., Ingelman, B. *Acta physiol. scand.* 1944, **7**, 97; *Ibid*, 1945, **9**, 1; *Nature, Lond.* 1945, **155**, 45.
3. Bohmansson, G., Rosenqvist, H., Thorsén, G., Wilander, O. *Acta. chir. scand.* 1946, **94**, 149.

Vitamin B_{12}

IT is now about nine months since LESTER SMITH in England, and RICKES and co-workers in the U.S.A., described the preparation from liver of crystalline anti-anæmic materials which were active in much smaller doses than any that had been tried before.[5] The Americans gave their crystals the non-committal name "vitamin B_{12}," and LESTER SMITH's material seemed to be a less purified preparation of the same substance. RICKES et al. have since stated that this anti-anæmic material is a "cobalt coördination complex,"[6] and LESTER SMITH[7] reports that the molecule has a weight of about 1500 and contains 4% of cobalt. Nevertheless, such evidence as there is suggests that cobalt by itself has no anti-anæmic activity in pernicious and similar anæmias. Vitamin B_{12} is present only in minute amounts in liver—a ton of fresh liver yields 250 mg. or so. But it is also active in minute doses; given parenterally to a patient with pernicious anæmia in relapse, a few microgrammes suffice to produce a reticulocyte response and start the marrow on its change from megaloblastic to normoblastic erythropoiesis.

Since the original announcement, results with vitamin B_{12} have been reported in various diseases. So far as is known it acts only on the anæmias characterised by a megaloblastic change in the bone-marrow—i.e., pernicious anæmia, nutritional megaloblastic anæmia, sprue, and a few other rare diseases. The material is scarce, so reports are few, but they are consistent. SPIES and co-workers[8] gave single doses

4. Goldenberg, M., Crane, R. D., Popper, H. *Amer. J. clin. Path.* 1947, **17**, 939.
5. See leading article, *Lancet*, 1948, **i**, 715.
6. Rickes, E. L., Brink, N. G., Koniuszy, F. R., Wood, T. R., Folkers, K. *Science*, 1948, **108**, 134.
7. Smith, E. L. *Nature, Lond.* 1948, **162**, 144.
8. Spies, T. D., Stone, R. E., Aramburu, T. *Stb. med. J.* 1948, **41**, 522.

of 6–15 μg. to patients with pernicious anæmia, nutritional macrocytic anæmia, and non-tropical sprue. The responses were definite but minimal; there was a reticulocytosis and there was normoblastic transformation in the marrow, but the rise in red cells and hæmoglobin was not significant. In 5 Cuban patients with tropical sprue who were given doses of 10–25 μg. there was a good initial response, but the patients soon relapsed; SPIES therefore thinks that 100 μg. is the minimum dose for producing remission, and he notes that 400 g. of whole liver by mouth, presumably containing about 100 μg. of B_{12}, was highly effective.[9] He and his colleagues [10] treated successive relapses in cases of pernicious anæmia, nutritional macrocytic anæmia, and tropical sprue with thymine, folic acid, and finally B_{12}. They found that the effective maintenance dose of thymine was 6–10 *grammes* daily and of folic acid 10 *milligrammes* daily, whereas B_{12} produced a reticulocytosis in doses of 6–23 *microgrammes* though the subsequent rise in red cells and hæmoglobin was poor. PATEL [11] gave larger doses—80 μg.—of LESTER SMITH's crystals to 2 patients with Indian sprue, but they only responded like those whom SPIES had treated with much smaller doses of B_{12}. Too few cases have so far been followed to give an idea of what the maintenance dose of B_{12} will be. In the case of pernicious anæmia described by BERK et al.,[12] before treatment the patient's blood had 1,920,000 red cells per c.mm. and 6·5 g. of hæmoglobin per 100 ml.; she received 55 μg. of B_{12} parenterally over 24 days, 40 μg. being given in the first 8 days, and her red-cell count rose to 3,380,000 per c.mm. with 10·2 g. of hæmoglobin per 100 ml. Thus rather more than 2 μg. daily produced a relatively poor response compared with that seen after the use of a potent liver extract; but it seems clear that if a dose of 5 or 10 μg. daily had been practicable a comparable response would have been obtained. At the Mayo Clinic, HALL and CAMPBELL [13] have treated 11 cases of pernicious anæmia in relapse with B_{12} and have followed them for one to five months. In 2 patients 1 μg. daily produced an optimal hæmatopoietic response, and satisfactory responses were obtained in 3 patients given 25 μg. once a week and in a fourth who received 5 μg. daily for five days and then 5 μg. thrice weekly. These workers agree with others that 1μg. of B_{12} is about equivalent to 1 *U.S.P.* unit of liver extract.

BERK and his co-workers were mainly concerned with the effect of B_{12} on their patient's neurological symptoms. This is an important matter, since the failure of folic acid to influence the combined degeneration of the cord is one of the main reasons why folic acid cannot be the anti-anæmic principle of liver and is unsuitable for the routine treatment of pernicious anæmia. If vitamin B_{12} is in fact the anti-anæmic liver principle, it must be shown to relieve the spinal-cord symptoms as well as the anæmia. The patient treated by BERK and others had definite signs of tract involvement—extensor plantar responses and sensory defects—and when B_{12} was given, and the anæmia remitted, these signs, together with the paræsthesia present, disappeared. Of the 11 cases reported by HALL and CAMPBELL, 6 had peripheral neuritis plus early or advanced combined degeneration, and in 5 of these the neurological manifestations improved satisfactorily during the few months' observation. In 3 cases the improvement is described as remarkably rapid. These results are encouraging but do not, of course, suggest that B_{12} has any special place in the treatment of subacute combined degeneration; similar results could have been obtained with a potent liver extract. There is evidence that commercial liver extracts contain vitamin B_{12}, and at the recent London Medical Exhibition one firm showed red crystals, like those of LESTER SMITH, obtained from their particular brand. This is interesting when we remember that the folic acid in commercial liver extracts was found to be very variable and even undetectable. If vitamin B_{12} is the anti-anæmic principle, then all potent liver extracts must contain it; but we know that liver extracts, particularly the more purified types, have at best only a partial effect on the organic signs and symptoms of those patients with subacute combined degeneration who have no significant anæmia; so the demonstration of B_{12} in these extracts damps our hopes—based admittedly on very tenuous evidence—that it will relieve these chronic sufferers.

Another consequence of the discovery of vitamin B_{12} will certainly be developed. The American workers checked their progress by the ability of their extracts to support the growth of *Lactobacillus lactis* Dorner. If commercial liver extracts owe their anti-anæmic activity to vitamin B_{12} it might be possible to assess their potency by a similar microbiological test. Investigation of this subject will call for a joint effort by those who can carry out the difficult microbiological technique and physicians who see untreated pernicious anæmia patients and are familiar with the pitfalls of clinical testing; a large number of parallel tests will be needed, using several extracts, and suitable patients are not found in large numbers in any one clinic. The technique of microbiological assay has also been used to search for other possible sources of vitamin B_{12}. RICKES and his team [14] have now isolated from broth cultures of *Streptomyces griseus* a red crystalline material with all the properties of vitamin B_{12}, including the presence of cobalt and phosphorus and ability to produce a clinical response in pernicious anæmia. It may be said that when we know the chemical constitution of vitamin B_{12}, whether it can be synthesised and prepared at an economic price (perhaps from some source other than liver), and whether it really reproduces all the properties of potent liver extracts, then neither microbiological assay nor clinical testing will be needed. But though all these points are being tackled they are unlikely to be solved very quickly or very easily. Meanwhile the practitioner will be well advised to keep to the recognised methods of treatment—with liver extracts that have been clinically tested before issue, or, if treatment by mouth is preferred, with desiccated stomach.

9. Spies, T. D., Suarez, R. M. *Blood*, 1948, **3**, 1213.
10. Spies, T. D., Stone, R. E., Lopez, G. G., Milanes, F., Toca, R. L., Aramburu, T. *Lancet*, 1948, ii, 519.
11. Patel, J. C. *Brit. med. J.* 1948, ii, 934.
12. Berk, L., Denny-Brown, D., Finland, M., Castle, W. B. *New Engl. J. Med.* 1948, **239**, 328.
13. Hall, B. E., Campbell, D. C. *Proc. Mayo Clin.* 1948, **23**, 584, 591.
14. Rickes, E. L., Brink, N. G., Koniuszy, F. R., Wood, T. R., Folkers, K. *Science*, 1948, **108**, 634.

Venereal Diseases

THE late CHARLES GIBBS, of Charing Cross Hospital, used to teach that future generations would refer to ours as the syphilitic age; adding cheerfully, however, that the end was in sight; for, though modern methods of treatment might not always cure outright, they quickly made the patient non-infective. Mr. GIBBS would have had better grounds for his optimism today, when we have penicillin as well as arsenic and bismuth. But the tendency towards improvement was interrupted by the war; and even after it, in 1946, the return from overseas of many infected young men led to a spectacular increase of new cases of syphilis attending centres for the first time.[1] The numbers rose, indeed, from 5214 men and 5527 women in 1945 to 10,705 men and 6970 women in 1946. Moreover, spread is always favoured by the fact that the signs of early syphilis are usually noted later in women than in men, and a promiscuous woman can unwittingly spread infection for longer than a promiscuous man. Women likewise play the chief part in spreading gonorrhœa; for which, in 1946, 36,912 men and 10,431 women attended treatment clinics. This emphasises the importance of tracing contacts—a process which cannot yet be called really successful in this country, for of 3441 women and 271 men notified as contacts in 1946 less than half the women and only just over half the men were examined. Defence regulation 33B—which made it an offence for any person to refuse medical examination and treatment if he or she was declared by two or more patients to be the source of infection—was then in force, and 136 of the women and 3 of the men were compulsorily examined under it; but this regulation expired thirteen months ago.

These figures show that protection of healthy people from infection with venereal disease is still far from adequate; and it may be worth examining current American methods of propaganda which are said to be highly effective. For example, between November, 1947, and May, 1948, the *Columbus Star*, a weekly journal circulating in Ohio, published 23 venereal-disease case-histories, each accompanied by a statement from the doctor in charge of the Central Ohio rapid treatment centre.[2] This series caused many people to seek treatment early and is said to have been favourably received by all but a very small proportion of the public. The journal also offered to send free educational material, obtained from the United States Public Health Service, to any who wrote for it, and the response was immediate and great. "No squeamishness or false modesty was seen in the requests": housewives asked for copies for young people; clergy asked for material for group reading to parishioners; booklets for "teen-agers" were in demand; trade unions, industrial nurses, servicemen, the head of a police moral squad, college students, boys' clubs, and high-school hygiene classes all sought this information. The inference seems to be that people, at any rate in Ohio, are ready to learn and are not easily shocked. American campaigns have gone further perhaps than we should be inclined to follow them: we should not like to have loudspeakers in the streets which alternated venereal-disease messages with boogie-woogie rhythms. But there is surely a good case for intensifying the instructive efforts of our Ministry of Health, and for broadcasting more information on the lines of the impressive radio talk that Sir WILSON JAMESON gave in 1942.

Public education is perhaps the predominant need in any campaign for controlling venereal disease, and is essential for efficient case-finding; but the second great need is to hold the cases during treatment. It is noteworthy that the patients in Ohio were urged to attend the *rapid* treatment centre. The psychological effect of this name must have been great; and surely the adjective could nowadays be fairly applied to all treatment centres. For even though, in the treatment of syphilis, a course of bismuth and arsenicals is required to supplement penicillin, the time taken to achieve clinical cure is much shorter than formerly; and for gonorrhœa it is short by any reckoning. Case-holding remains as important as ever; for even penicillin is not a magic potion, and relapses are not so rare that they can be disregarded. Efficient case-finding and case-holding, and public instruction, were two of the nine requirements for venereal-disease control laid down ten years ago by THOMAS PARRAN, then surgeon-general of the U.S. Public Health Service. The others were provision of a trained public-health staff to deal with syphilis in each State and city; premarital and prenatal serodiagnostic tests; proper diagnostic services; sufficient treatment facilities; proper distribution of antisyphilitic drugs; routine serodiagnostic tests; and a scientific information programme. Before he retired, PARRAN saw most of those nine requirements fulfilled in the larger centres of population in his own country. Venereal-diseases control officers, contact-tracing organisations, and venereal-diseases central files are to be found in most of the public-health departments of the big cities, and about $2^1/_2$ million premarital or prenatal blood examinations are made each year in the 36 States or Territories where such tests are obligatory. Some 3000 clinics and 63 rapid treatment centres have now been established, and the number of serum tests performed has increased in ten years from $2^1/_2$ million to about 20 million. Venereological information is given to practitioners at regular seminars and conferences held at intervals up and down the States, and the U.S. Public Health Service sponsors the *Journal of Venereal Disease Information* which is freely distributed to those interested. The results of all this cannot be easily judged, for the incidence and mortality of venereal diseases, as of other infections, are governed by a great many factors—both medical and social—and the same sort of epidemiological trends have lately been apparent in various countries involved in the war. Nevertheless, the advocates of active endeavour can claim some support for their efforts from the facts that the death-rate from syphilis in the U.S.A. declined from 16 per 100,000 in 1937 to 9·3 in 1946,[3] that infant deaths due to syphilis decreased from 69 to 25 per 100,000 in the same time, and that in the eight years 1937–44 patients admitted to mental asylums because of syphilis fell from 7·1 to 5·8 per 100,000. Largely, no doubt, because of the war, the number

1. Report of the Ministry of Health for the Year ended March 31, 1946.
2. Freeble, C. R. jun., Robinson, A. *J. vener. Dis. Inform.* 1948, 29 307.
3. Heller, J. R. jun. *Ibid*, 1947, 28, 245.

of new cases of syphilis placed under treatment substantially increased, but it is argued that many of these are accounted for by more efficient case-finding. The numbers of congenital syphilitics (stage unspecified) fell from 17,592 to 12,284 between 1941 and 1947.[4]

Not only by instruction of the public but also by instruction of the profession, a good deal more could be done in this country. Now that they have become the preserve of specialists, venereal diseases are too seldom mentioned in our medical meetings and have receded too far into the background of most doctors' minds. In another respect also we might do well to follow the American example—namely, in doing more to encourage venereological investigation. The fact that, in the past, venereal diseases have been mainly the concern of the local authorities has led to their comparative neglect at the principal places of medical research. The regional boards, in taking over the responsibility, have a great opportunity to promote inquiry as well as good treatment.

Annotations

EXAMINATION OF SPUTUM FOR MALIGNANT CELLS

THE search for malignant cells in the sputum is essentially a personal technique depending on the experience and judgment of the pathologist. It cannot be mass-produced and there is no sharply defined acid-fast colour reaction which will enable the examination to be entrusted to a junior technician. The pathologist himself must accept full responsibility for a report which may ultimately lead to the removal of a lung. A well-known chest surgeon once handed round to his class a pathological report and asked what was the most important item in it. After rejecting various proffered answers he replied, "the signature of the pathologist." There are pathologists who still take the safe line that malignant disease of the lung cannot be diagnosed under any circumstances by cytological examination of the sputum, but accumulated experience since the publication of Dudgeon and Wrigley's original paper has gone far to modify this pessimistic view. Lately Bergmann and others [5 6] have summarised a good deal of evidence which shows that cytological examination of the sputum for malignant cells will yield a positive diagnosis in a considerable proportion of cases (up to 72% in known positive cases), especially in apical lung carcinoma where the tumour may be beyond the reach of the endoscopist for bronchial biopsy.

There are two main types of sputum from which successful results can be obtained—the one containing small portions of malignant tissue and plaques of cells which retain some of the morphological appearances of the growth from which they have been detached; the other having only isolated malignant cells. Obviously the latter are much more difficult to interpret; indeed so difficult are they that a pathologist may often hesitate to commit himself even to a diagnosis of probability. But the contribution which he can make to the early recognition of malignant disease is so important that the acquisition of the necessary laboratory technique and experience is abundantly worth while. A routine cytological examination of all types of sputum forms a valuable training ground on which to base this experience. Bergmann and his co-workers indeed believe that all cells in sputum can be identified, and that neoplastic cells can with care be classified into their main varieties (squamous, adenocarcinoma, and small-cell carcinoma). Furthermore, examination of control films from operation material and bronchial biopsies will enable the pathologist to build up a personal technique which will stand him in good stead in many a difficult case.

The pathologist is now at a critical cross-road. Much of his work is being standardised so that relatively inexperienced laboratory staff can report with a plain "yes" or "no." The examination of sputum—and other secretions—for malignant cells is one of those tests in which painfully acquired experience alone counts. Unequivocal answers may be discouragingly infrequent, but any help which the pathologist can give in the diagnosis of an early, and probably operable, case of primary carcinoma of the lung will be welcome to his clinical and radiological colleagues.

4. *Ibid*, p. 263.
5. Bergmann, M., Shatz, B. A., Flance, I. J. *J. Amer. med. Ass.* 1948, **138**, 798.
6. Shatz, B. A., Bergmann, M., Gray, S. H. *J. Lab. clin. Med.* 1948, **33**, 1588.

THE RESEARCH-WORKER'S SALARY

THOSE engaging in full-time medical research are well aware that they could earn more in routine laboratory work or in clinical specialist practice. In a memorandum[1] published this week the Association of Scientific Workers observes that with the implementation of the Spens report on specialists' pay the research-worker's disadvantage will be accentuated. The association believes that without prompt action workers will drift into routine duties and that the flow of recruits will dwindle. (The report does not dwell on the position of doctors employed in the non-clinical departments of universities; their case, it says, has been fully explored at a conference of non-clinical professors.) Since the war, it says, the Medical Research Council and other bodies promoting full-time research have had difficulty in attracting young men and women; and there has even been internal competition for recruits between the full-time research laboratories of the M.R.C. and the Public Health Laboratory Service—an organisation directed by the M.R.C. whose workers perform both routine and research duties. Discrepancy between remuneration in these two divisions is already evident; and the Treasury is likely to agree that the staff of the Public Health Laboratory Service shall rank as specialists. "It is as unreal as it is unjust to rate separately the highly specialised medical 'back-room' experts and the 'front-line' specialists." The association does not seek to belittle the research-worker's advantages. "Thus the M.R.C. are in many ways model employers. They have succeeded in avoiding the dangers of bureaucracy; they have fostered a camaraderie among their staff; irritating administrative pin-pricks are conspicuously few; and the staff enjoy a high degree of independence." Research is a vocation, and economics are of secondary importance to the people engaged in it; "but the exigencies of present-day cost of living, the difficulty of bringing up a family, and the general wear and tear of post-war life, cannot fail to colour the undoubted intellectual attractions of a research career," particularly for those who like the idea of research but have not yet sampled it. "Further, except for the brilliant or fortunate few, a research worker encounters many bad patches—financial worries are hardly conducive to perseverance under these circumstances."

What is the remedy? In the association's view, each research-worker in a large group should be graded according to age, standing, and degree of scientific or administrative responsibility; this grading should correspond both in range and rate of ascent with the grading in respect of specialists' regular salaries in the National Health Service; and the equivalent N.H.S. salary should be

1. The Salaries, Status, and Recruitment of Full-time Medical Research Workers in Great Britain: a memorandum prepared by the Medical Sciences Committee of the Association of Scientific Workers. Obtainable from the general secretary of the association, 15, Half Moon Street, London, W.1.

paid—less, say, 10% since the research-worker is spared the hurly-burly of the specialist's life. For senior workers there should be a chance of additional income on the lines of the distinction awards to specialists. Those with science qualifications who engage in full-time medical research should be paid on the same basis as those with medical qualifications; this principle is already pursued by the M.R.C., which, in further fulfilling it, may find itself in difficulty vis-à-vis the scientific civil service. "Nevertheless, we urge that only by increases which follow to a reasonable extent the upward trends in other specialist branches of the country's medical system, will all medical research workers be rewarded in a fair manner, and will an adequate supply of man-power be ensured for this essential service."

MOTH DERMATITIS

EVERY countrydweller knows that "woolly bear" caterpillars may cause dermatitis when handled, and in France the names "mal des bassines" and "mal des vers" have been given to dermatitis affecting girls employed in winding silkworm cocoons [1]; but it is not so well known that the hairs of some full-grown moths will also cause dermatitis. For instance, dermatitis due to contact with the hairs of the larva, cocoon, and imago of the brown-tail moth (*Euproctis chrysorrhœa*) has been reported in the U.S.A. several times, and to those of the cocoon of the same moth in England in 1884.[2] Strangely enough there seem to be no records of such dermatitis associated with the great plague of brown-tail moths in England in 1782. Both the brown-tail and the gold-tail (*E. similis*) moths have anal tufts of hair, and the females of both species shed theirs, as a kind of protective thatch, on their newly deposited ova. These hairs, freely handled by entomologists, have seldom been incriminated, but cases have been reported of dermatitis from the hairs of the gold-tail moth [3] and of its congener *E. flava*.[4] Dermatitis due to moths of the genus Hylesia, in South America, was first reported in 1918, and a spectacular outbreak [5] involving 31 of the crew of 45 on board the oil tanker *Wolfcreek*, was caused by a migrating swarm of female *Hylesia* (?) *tapabex* (the moths were badly crushed and their species therefore not exactly identifiable) off the coast of Venezuela on Feb. 16, 1947. The skin lesions appeared a few minutes to several hours after contact and were of two kinds: in the first there were groups of erythematous papules and papulovesicles on the arms, legs, and back, whereas the second was a more generalised urticaria chiefly affecting the flexor surface of the forearms and the front of the chest, abdomen, and thighs. The face, palms, soles, and mucous membranes were clear. The cause of the epidemic was not at first recognised; so the ship was placed in quarantine on its arrival at Boston. Those who had swatted the moths with their hands had also tried to kill them by exploding D.D.T. bombs, and at least one of these men had previously had a skin eruption after handling D.D.T. A fresh crop of cases on the ship's arrival at Boston on Feb. 22 followed an issue of fresh bed-linen. It was then discovered that moths had taken refuge in the linen cupboard and had stained the linen and shed hairs on it. Patch tests with stained linen and with hairs clinched the diagnosis. Removal of the patient from the source of contact, a soap and water bath, a change of clothing, and the application of an alkaline wash relieved the symptoms in 24 hours, and the lesions disappeared in 4–7 days. Adrenaline and anti-histamine drugs were tried but apparently had no effect.

1. See *Lancet*, 1900, ii, 1242.
2. Thresh, J. C. *Lancet*, 1906, ii, 291.
3. *Lancet*, 1908, ii, 1466.
4. Mills, R. G. *Chin. med. J.* 1923, **37**, 351.
5. Hill, W. R., Rubenstein, A. D., Kovacs, J. jun. *J. Amer. med. Ass.* 1948, **138**, 737.

A LESS TOXIC STREPTOMYCIN

Two of the drawbacks to streptomycin are toxicity and resistance. At first it was thought that impurities might be responsible for most of the toxic effects, but even when the pure substance was obtainable they were still observed both clinically and in animal experiments. It was hoped that, by slightly modifying the molecule, toxicity and resistance might be altered without interfering appreciably with antibiotic activity. In 1946 the catalytic hydrogenation of streptomycin to dihydrostreptomycin was described by Peck and his co-workers,[1] and during the last year extensive laboratory and clinical studies on this substance have been made in various centres in America. Rake and his colleagues [2] at the Squibb Institute for Medical Research, New Jersey, have shown that for most strains of *Myco. tuberculosis* there is little in-vitro difference between the activities of streptomycin and of dihydrostreptomycin, though the latter is somewhat less active against *Salmonella schottmülleri* and *S. typhosa*. Edison and her co-workers [3] at the Merck Institute for Therapeutic Research, New Jersey, have confirmed the observations on *M. tuberculosis* and found no substantial difference in the antibacterial activity of the two drugs when tested against a variety of other pathogenic organisms.

Unfortunately, hydrogenation has no effect on drug resistance; organisms resistant to streptomycin are also resistant to dihydrostreptomycin. But the Merck workers did find that the chronic neurotoxicity of streptomycin, which is a serious obstacle to its clinical use, is greater than that of dihydrostreptomycin. When the two drugs were given to cats in equiactive doses, ataxia and other vestibular disturbances were delayed and were less severe in the dihydrostreptomycin group: these animals also lost much less weight and showed fewer signs of toxicity than those receiving streptomycin. Similar observations were made by Hobson et al. [4] at Cornell University. Biochemical, hæmatological, and pathological studies showed little difference between groups of dogs and monkeys treated with streptomycin and with dihydrostreptomycin. It is generally recognised that slight changes in chemical composition may alter the capacity of a drug for producing sensitisation. Dihydrostreptomycin, with a greatly altered polar group, might be expected to differ significantly from streptomycin in this respect. Hobson and colleagues found that dihydrostreptomycin is well tolerated by patients who are hypersensitive to streptomycin. They also showed that it is less neurotoxic in man than the parent substance. Vestibular damage appeared later in patients given 5 g. of dihydrostreptomycin daily than in those receiving 3 g. of streptomycin. Disability resulting from vestibular dysfunction was also less in the dihydrostreptomycin patients. Renal damage, which has been observed in patients receiving streptomycin, has also occurred in those given dihydrostreptomycin. To determine whether the diminished toxicity of dihydrostreptomycin was due to lower concentration in the blood and other body fluids, Levin and others [5] at the Mayo Clinic compared the absorption, excretion, and distribution of dihydrostreptomycin and of streptomycin in various body fluids. Data obtained were very similar for the two drugs. Dihydrostreptomycin can be found in significant quantities in the pleural fluid and the cerebrospinal fluid after intramuscular injection.

1. Peck, R. L., Hoffhine, C. E. jun., Folkers, K. *J. Amer. chem. Soc.* 1946, **68**, 1390.
2. Rake, G., Pansy, F. E., Jambor, W. P., Donovick, R. *Amer. Rev. Tuberc.*, 1948, **58**, 479.
3. Edison, A. O., Frost, B. M., Graessle, O. E., Hawkins, J. E. jun., Kuna, S., Mushett, C. W., Silver, R. H., Solotorovsky, M. *Ibid*, p. 487.
4. Hobson, L. B., Tompsett, R., Muschenheim, C., McDermott, W. *Ibid*, p. 501.
5. Levin, L., Carr, D. T., Hellman, F. R. *Ibid*, p. 531.

A clinical investigation of dihydrostreptomycin in tuberculosis was undertaken by Feldman, Hinshaw, and their group at the Mayo Clinic [6] during 1948. They had previously shown that in experimental tuberculosis in guineapigs, due to a human strain (H 37 Rv), dihydrostreptomycin is as effective as the parent substance in prolonging the survival-rate of the infected animals and in limiting the spread of the infection.[7] Their clinical material was limited to only 14 cases, but they were convinced that the activity of the dihydro compound was similar to that of streptomycin. They were also impressed with the diminished toxicity of dihydrostreptomycin. Thus they could administer it to patients in doses of 2–3 g. daily for sixty days or longer with little danger of producing vestibular dysfunction. They also observed that the drug is tolerated by some patients who are highly sensitive to streptomycin. The Mayo Clinic workers did, however, note that in cases of tuberculous meningitis intrathecal therapy produced irritation of the cord and a block in the cerebrospinal fluid. Some irritation at the site of intramuscular injection was observed in some patients, but was no worse than that after the injection of streptomycin. Another 12 cases of pulmonary tuberculosis treated with dihydrostreptomycin are reported by Hobson and colleagues.[4] They also confirm the diminished neurotoxicity of the drug in man and consider that the therapeutic results are as good as those obtained with streptomycin.

These preliminary clinical reports are encouraging, though they need to be confirmed on a larger series of cases. There seems to be no doubt about the diminished neurotoxicity of dihydrostreptomycin and its ability to replace streptomycin in hypersensitive patients. It might therefore be preferable to streptomycin for patients who require large doses or long courses. We still know little about the therapeutic effectiveness of streptomycin in small doses—the precise ratio of the toxic dose to the optimal therapeutic dose has not yet been established. It is thus important that experience should be gained on the effectiveness of dihydrostreptomycin in dosages that are well tolerated for long periods.

ADRENALINE AND ITS NEAR RELATIONS

It has long been known that adrenaline is the active substance obtained from extracts of the suprarenal medulla. The *lævo*-isomer is the one found in the gland and this has much greater pharmacological activity than the *dextro* compound. Commercial *l*-adrenaline is now usually prepared synthetically, and to maintain stability it is essential to have it in acid solution and advantageous to include a stabiliser such as sodium or potassium metabisulphite.

The chemical mediator (or mediators) liberated by adrenergic nerves has not yet been identified with certainty. The evidence of experiments with isolated frogs' hearts and perfused rabbits' ears has supported the view that this substance is adrenaline. But the findings with other mammalian tissues suggest that adrenaline is not the only substance liberated. It is not yet known how adrenaline is formed in the body but information is accumulating. A second phenolic hydroxyl group may be introduced into the tyrosine molecule, thus forming dihydroxyphenylalanine; decarboxylation then occurs yielding hydroxytyramine, and the introduction of the OH group into the side-chain follows to form the primary sympathomimetic amine, noradrenaline. The last stage of adrenaline formation is the N-methylation of noradrenaline. Since adrenaline occurs as the *lævo*-isomer in the adrenal medulla, one might expect that if there were other similar natural compounds they would also occur as the *l*-isomers. The production of *l*-noradrenaline last year has made it possible to compare this substance with sympathin liberated by, or contained in, adrenergic nerves. In an adrenal tumour about ten times as much *l*-noradrenaline as *l*-adrenaline has been detected, and it may be that noradrenaline as well as adrenaline is present in the normal adrenal medulla.

So far as we know, adrenaline (which may also be called methyl-noradrenaline) and noradrenaline are only absorbed adequately when given by injection, and even then absorption is slow. The instability of these substances is said to be due to the presence of the three-OH groups. The molecule of ephedrine differs from that of adrenaline in the absence of two hydroxyl groups and the presence of an extra methyl group in the side-chain, both of which differences tend to make ephedrine stable. Hence ephedrine is effective when given by mouth and its action lasts longer than that of adrenaline. A stage further in stability is reached when the three-OH groups of the adrenaline molecule are omitted, the N-methyl group is lost (as in noradrenaline) and the extra methyl group is added (as in ephedrine). The resulting compound—amphetamine or 'Benzedrine'—is volatile and may be inhaled to produce vasoconstriction in the nose. Both amphetamine and ephedrine are derivatives of isopropylamine, and are not inactivated by tissue amine oxidase.

Returning again to the adrenaline molecule, noradrenaline results if the N-methyl group is lost. But if the N-methyl group is replaced by a N-isopropyl group, 'Aleudrine' or isopropylnoradrenaline is produced. This compound, when tested on animals, is vasodepressor in all doses but produces the typical tachycardia. Its therapeutic importance lies in the fact that it is many times stronger than adrenaline as a bronchodilator and can be administered by mouth.

6. Feldman, W. H., Karlson, A. G., Hinshaw, H. C. *Ibid*, p. 494.
7. Hinshaw, H. C., Feldman, W. H., Carr, D. T., Brown, H. A. *Ibid*, p. 525.

FEWER N.H.S. PRESCRIPTIONS?

In Middlesex the number of National Health Service prescriptions grew steadily, at the rate of about 100,000 a month, from 511,031 in July to 915,931 in November. Then last month the total receded by nearly 42,000 to 874,077. Some may attribute the decline to the season. Or it may be that doctors are now giving fewer and larger prescriptions, or that patients, weary of waiting in surgeries, are sometimes buying medicines themselves or going without. But it is possible that initial curiosity and desire to test the new service is becoming exhausted. The experience of one county in one month is not proof that demand has reached or passed its peak; but it may be a hint.

BETTERMENT

It will be remembered that the Spens Committees made their recommendations in terms of the 1939 value of money. "We leave to others," they said, "the problem of the necessary adjustment to present conditions, but we would observe in this connexion that such adjustment should have direct regard not only to estimates of the change in the value of money but to increases which have in fact taken place since 1939 in incomes in other professions." The British Medical Association has now received a report from an expert who argues that if the professional classes' cost-of-living figure in 1938 is taken as 100, the appropriate figure for today is 185. He points out that it has risen by 35 points since 1946 when the Ministry of Health decided that 20% should be added for betterment. Reasons for an increase will be put forward by a deputation from the Joint Committee of Consultants and Specialists and the General Medical Services Committee.

Special Articles

PREVALENCE OF TUBERCULOSIS IN WESTERN GERMANY

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Members of Scientific Staff, Medical Research Council

IN September, 1947, we visited the British Zone of Germany and Berlin at the request of the Foreign Office to investigate the prevalence of tuberculosis. In our report [1] we concluded that the situation in the British Zone (excluding Berlin) was not alarming; that the war-time rise in tuberculosis mortality had been checked; and that the levels of tuberculosis mortality in the individual Lands of the Zone compared favourably with those in parts of Great Britain and other European countries. We concluded also that the much advertised increase in morbidity, based on notifications, was largely a paper increase. We considered the position in Berlin, on the other hand, to constitute a grave problem, with a high level of tuberculosis mortality, which, however, showed evidence of a commencing decline.

Some recent publications support these findings. The most important is the report of a mission directed by the secretary of the United States Army "to investigate the incidence of, and recommend control measures for tuberculosis among the German civilian population." Reports to the Department of the U.S. Army from German sources had suggested that a significant rise in the prevalence of tuberculosis had taken place in the Western Zones of Germany; and information was wanted on the nature and extent of this rise. The mission, headed by Dr. Esmond R. Long, visited Berlin and the U.S. Zone of Germany in February of this year, and their findings have been published.[2]

The conclusions of the Americans regarding tuberculosis trends in the U.S. Zone (excluding Berlin) are similar to our own for the British Zone. They found that the tuberculosis death-rate, after a war-time rise, was again declining, and in most parts of the Zone was approaching the pre-war level. The mission agreed that death-rates are the most sensitive and valid index of tuberculosis trends, and expressed disagreement with, and surprise at, the emphasis laid by German specialists on the reported case-rates of tuberculosis as an index to the extent and trend of the disease.

An unsigned article by a German doctor [3] supports these conclusions and deplores the issue of alarmist reports based on unreliable morbidity statistics. He concludes: "Conditions are bad enough; there is no need for exaggeration, which in the long run harms instead of helping us."

However, a report by Dr. Ickert,[4] a German physician, returns to the previous conception, which attached great importance to morbidity statistics. This report is sponsored by the German central committee for tuberculosis control in the British Zone, and for that reason alone merits serious analysis. Unfortunately the book is so full of errors as to make bewildering reading. Thus, in support of the argument that tuberculosis prevalence is increasing, the totals of sputum-positive cases on the dispensary registers in successive post-war years are compared, and Ickert contrasts a figure of 11,484 open cases in 1945 with 42,126 in 1947. The 1947 figure, however, is for the whole British Zone, whereas the 1945 total excludes North Rhine-Westphalia, for which Land no 1945 figures were available, but which contains half the population of the Zone. He compares in a similar way figures for cases of all types on the registers for these years. Apart from the major error just indicated, the validity of the comparison is seriously affected by the increase in dispensary activities, including case-finding, from the chaotic final war year through succeeding years. Turning to the mortality data, in his presentation of tuberculosis death-rates for the whole British Zone, Ickert gives figures of 70, 89, and 77 deaths per 100,000 for 1945, 1946, and 1947 respectively—showing, therefore, higher rates in 1946 and 1947 than in 1945. But here again 1945 figures for North Rhine-Westphalia are not available, and it is impossible to see how he has reached the total figure of 70 for 1945. Actually, in two of the three Lands other than North Rhine-Westphalia, the rate fell between 1945 and 1946. Finally, it is stated in the conclusions that the tuberculosis mortality in males is still increasing; but, though full statistical tables are given at the end of the report, we can find no figures to justify this statement.

In other respects Ickert's book performs a useful service. Some of the statistics given in the tables differ from the provisional ones given to us a year ago from German sources, and one can assume that these are now the definitive statistics; furthermore, figures for the whole of 1947 are now given. The tabulations of tuberculosis mortality in the British Zone show a more definite fall between 1946 and 1947 than we could demonstrate; this fall took place in each of the four Lands. The rate of 77 deaths per 100,000 population for the whole British Zone in 1947 may be compared with that of 54 (provisional figure) for England and Wales excluding London (1947), of 80 for Scotland (1947), of 124 for Eire (1947), and of 81 for France (1946). The rate of 80 for Hamburg in 1947 compares with that of 69 for London (1947), 129 for Glasgow (1947), and 163 for Dublin (1947); it compares with 72 for Paris (1947), 71 for Brussels (1947), and 159 for Rome (1946).[5] Ickert's figures also show a consistent decline in tuberculosis mortality in the Lands of the U.S. Zone between 1946 and 1947.

The tuberculosis mortality figures for the first half of 1948 in the British Zone, reported from the German Statistical Office, have just been made available to us through the courtesy of Brigadier Strelley Martin, public-health adviser to the British Military Governor, Germany. By comparison with previous corresponding half-years, they show a continuation of the post-war fall in the tuberculosis death-rate in the British Zone, though at a reduced rate of decline:

Form of Tuberculosis		*Annual death-rates per 100,000* 1946*	1947	1948
January–June	Pulmonary	85	68	65
	Other	19	17	13
	All	104	85	78
July–December	Pulmonary	58	54	..
	Other	15	15	..
	All	73	69	..

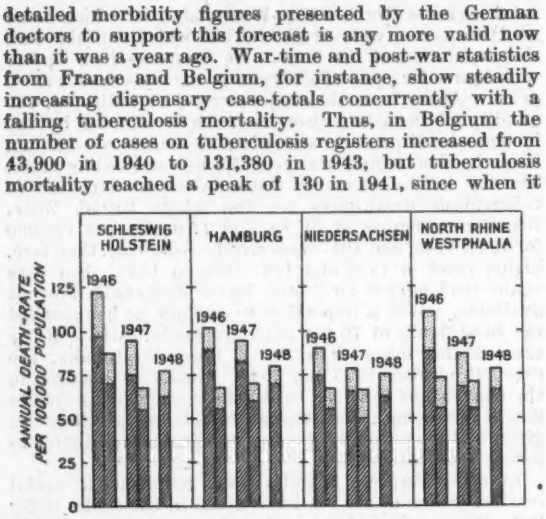
* Comparable figures for the half-years of 1945 are not available for all Lands, and those available are not completely reliable owing to the conditions then prevailing.

The falling rate from 1946 to mid-1948 is evident in each Land of the British Zone, as shown in the accompanying figure.

These statistics give no support to the sensational statements that were being made in 1947 on the basis of exaggerated estimates of the prevalence of tuberculosis.[6] Nor do the fears expressed by some, that the apparent rise in morbidity at that time heralded a further calamitous rise in mortality in the near future, seem to have been well founded. None of the arguments and the

1. Daniels, M., Hart, P. D'A. Tuberculosis in the British Zone of Germany. London: H.M. Stationery Office. 1948.
2. Tuberculosis, U.S. Zone Germany, Special Report of the Military Governor, Germany (U.S.), May, 1948; and *Bull. U.S. Army med. Dept.* 1948, 8, 564.
3. *TuberkArzt.* 1948, 6, 486.
4. Ickert, F. Die Tuberkulose in der Britischen Zone. Hanover, 1948.
5. *W.H.O. epidem. vital Stat. Rep.* March, 1948.
6. *Manchester Guardian*, Berlin Correspondent. June 4, 1947.

detailed morbidity figures presented by the German doctors to support this forecast is any more valid now than it was a year ago. War-time and post-war statistics from France and Belgium, for instance, show steadily increasing dispensary case-totals concurrently with a falling tuberculosis mortality. Thus, in Belgium the number of cases on tuberculosis registers increased from 43,900 in 1940 to 131,380 in 1943, but tuberculosis mortality reached a peak of 130 in 1941, since when it



Half-yearly mortality from tuberculosis in 1946-48 in Lands of the British Zone, Germany; left-hand columns of 1946-47, January–June; right-hand columns of 1945-47, July–December; 1948 columns, January–June. Hatched portions, pulmonary tuberculosis; stippled portions, other forms of tuberculosis.

has steadily fallen, reaching a rate of 70 in 1947. The death-rates remain the most accurate index of tuberculosis trends.

These comments are not intended to detract from sympathy for the German people. Although tuberculosis is not so prevalent as has been claimed by some, and is not so high as in many other countries, the position is serious enough to give no grounds for complacency. A declining mortality at the present time offers no sure guarantee that this will continue. Moreover, we realise that the Germans are living in conditions which would be expected to favour the spread of tuberculosis; improvement of housing and of the food situation should have a beneficial effect on the tuberculosis-rates, as it would in other countries. However, it must be evident that faulty statistical analyses cannot assist the Germans in assessing the true position. Before 1933 they had a high reputation in statistical records and analysis; it may be hoped that gradually they will make good the deterioration of the Hitler years.

SUMMARY

Judged by death-rates, the tuberculosis situation in the British Zone (excluding Berlin) improved from 1946 up to mid-1948.

"... One word about pillows. Every weak patient, be his illness what it may, suffers more or less from difficulty in breathing. To take the weight of the body off the poor chest, which is hardly up to its work as it is, ought therefore to be the object of the nurse in arranging his pillows. Now what does she do and what are the consequences? She piles the pillows one a-top of the other like a wall of bricks. The head is thrown upon the chest. And the shoulders are pushed forward, so as not to allow the lungs room to expand. The pillows, in fact, lean upon the patient, not the patient upon the pillows. It is impossible to give a rule for this, because it must vary with the figure of the patient. But the object is to support, with the pillows, the back *below* the breathing apparatus, to allow the shoulders room to fall back, and to support the head, without throwing it forward. The suffering of dying patients is immensely increased by neglect of these points. And many an invalid, too weak to drag about his pillows himself, slips his book or anything at hand behind the lower part of his back to support it."—FLORENCE NIGHTINGALE, *The Art of Nursing*. Revised edition. London, 1946.

The Act in Action

5. HOSPITAL OUTPATIENTS AND ADMISSIONS

THE hospitals are now dealing with many patients—particularly women and children—who are in need of expert advice and even admission but would not have attended if there had been no National Health Service. Since July 5 a heavier burden has been borne by the consultative services. General practitioners without the time—and possibly the wish—to undertake detailed examinations or time-consuming treatments are sending more people to outpatient departments; and the Act makes these departments mainly responsible for issuing appliances.

OUTPATIENTS

Even before the start of the service, outpatient attendances had been rising towards the pre-war total.[1] In London since July 5 this total has been rapidly reached and surpassed. In 1947 the London Hospital had 84,928 new outpatients with 475,240 attendances: last year the figures rose to 95,963 and 519,901. At King's College Hospital attendances in November, 1947, numbered 26,000; last November they totalled 35,000. At Edgware General (then Redhill County) Hospital, in the December quarter, 1947, there were 11,026 new cases and 42,088 attendances; last year the comparable figures were 12,689 and 50,432. The actual increase may be somewhat greater than these figures suggest; some hospitals used to keep on as outpatients people who were not strictly in need of hospital treatment but who could not afford the fees of a general practitioner or the cost of medicines; this work is now ended.

In response to the new demand, clinics have been duplicated and in some cases triplicated. A number of hospitals already have an appointments system; the virtues of such a system have been heavily underlined since July 5, and the Minister of Health has just recommended its general introduction "as a matter of urgency." He also urges that clinics should be held at times meeting local convenience, that where necessary departments should be redecorated and equipped with comfortable chairs, and that if possible a canteen should be provided. For the hospital, appointments assure that the department—which is often too small—does not become overcrowded; the patient and his notes can be made to reach the consultant at the right time; and there is a steady flow of patients to the ancillary departments.[2] For the consultant such a system has the merit of enabling him, first to judge how long he will be detained, and secondly to group patients with particular disorders, for teaching or other purposes. To the patient it means that the risk of having to hang about is minimised; at King's College Hospital the average waiting period has fallen from 1 1/2 hours to half an hour.

Appointments have their drawbacks. Often the interval between fixing the appointment and seeing the patient is a week or less; but sometimes it is a month or more, and during this interval the patient's condition may become urgent. That patients occasionally prefer to be seen without this delay, though at the cost of immediate inconvenience, is indicated in cities where some hospitals are operating the system and others are not. To the latter comes a steady trickle of patients who would have attended a hospital in the first group but for the waiting period. Moreover, the whole system of appointments is thrown out of gear if the consultant is unable to attend or even if he is late. Time may be

1. King Edward's Hospital Fund for London: Statistical Summary of the Income, Expenditure, Work, and Costs of 159 Hospitals for 1947. See *Lancet*, 1948, ii, 834.
2. King Edward's Hospital Fund for London: Some Observations on Hospital Admissions and Records. London, 1948.

wasted, too, if a patient does not arrive at the appointed time; and at King's College Hospital patients due to attend those special clinics where each consultation takes over half an hour are asked to confirm on the previous day that they will attend. However, its users in general welcome the practice.

The cost in labour and money is not negligible. At King's College Hospital, in a department dealing with 45,000 inquiries and 30,000 appointments a month, 9 clerks are employed (including 4 typists, of whom 2 are part-time); of these, 6 were taken on to deal with appointments. In addition, 8 clinical receptionists are engaged, their main duties being to get the patient and his notes to the doctor, and to conduct the patient from one department to another.

Some consultants, impressed by the triviality of many of the cases now referred for their opinion, reason that this pressure should be eased by the appointment of more registrars and clinical assistants. In a few areas administrators believe that, now that the hospitals are unified, overlap between the clinics at nearby hospitals should be ended; and in the more compact areas thought is being given to the establishment of a single consultative centre at the hospital most conveniently situated for patients and possessing the best ancillary services.

ADMISSIONS

Some measure of the unsatisfied demand for places in hospital is given by the experience of the Emergency Bed Service in the last six months.[3] At the beginning of December applications were about three times as numerous as in 1947, and were still increasing. The difficulty, in the experience of the E.B.S., is greatest with cases which are, or might become, chronic; but it has also proved hard to gain admission for other groups, notably babies. On another page a correspondent complains of the offhand way in which applications for admission are sometimes dealt with; and, mindful that this criticism has often been justified, some hospitals are setting up admission offices to deal more swiftly—and politely—with patients and their family doctors.

Hospitals are increasingly alive, in the changed circumstances, to the necessity for knowing exactly how many are awaiting admission. Waiting-lists, the significance of which varies from one hospital to another, do not always fluctuate with the demand on beds. At the London Hospital the length of the list has not changed greatly since the appointed day, whereas at King's College Hospital it grew from 2700 at July 5 to 3927 at Dec. 1. The longest lists now are commonly for admission to the following departments: ear, nose, and throat (particularly children for tonsillectomy); gynæcological; orthopædic; and general surgical (patients whose names are down for operation on varicose veins may have to wait 4 or more years).

Unless the hospital takes the trouble to keep in touch with patients, the number actually waiting to come in will be less than the list indicates. In the time between his name being placed on the list and his being sent for, the patient may leave the district or be treated elsewhere; he may die, or he may recover. If unaware of this, hospitals sending for patients at the last minute find that beds are being wasted. At some centres letters now go out from time to time to make sure that admission is still required; and this token of being at least remembered usually heartens the recipient. At other places the patient is told a week or so in advance the date on which a bed is being reserved for him, and this gives him time to confirm that he will be coming and to make personal arrangements. At some hospitals—Edgware is one—specialists find it possible to inform outpatients at their first attendance when they will be admitted, even if the date is six or eight months ahead. At this hospital children referred for tonsillectomy are not seen as outpatients until about a week before a bed can be found for them; this makes it as certain as possible that when admitted the child will really need operation and will be fit for it.

If general hospitals dealt only with patients from the waiting-list no bed need be empty at night. But, as they have to take an unpredictable number of emergencies, some beds are inevitably unoccupied; and usually a bed occupancy of 85% has been about the average. Some general hospitals, however, are now averaging 90%; and one large teaching hospital in London (which has a ratio of nurses to patients far below 1 : 1) has achieved and sustained an average of 97%. This has demanded considerable effort and good will, since patients may be admitted at night to beds, not in the appropriate wards, but where they can be found; and the following morning these patients have to be sorted out. At this centre it is believed that 10% vacancy is probably the optimum.

At the London Hospital the unsatisfactory midnight return of bed-state has been superseded by a board giving minute-to-minute information on beds occupied and vacant; and at King's College Hospital a similar board is to give the name of each inpatient.

Can better use be made of beds by closer integration of hospitals? It has been suggested that beds could be more fully used by free interchangeability of patients between hospitals in an area. First steps have already been taken in this direction; in the Bromley area a resident obstetrical officer has been appointed for duty in all the hospitals under the management committee. The drawback to interchangeability is that a patient seen as an outpatient by one consultant might be admitted to the ward of another in a different hospital; and to this both specialists might very reasonably object. To overcome this a senior staff common to all the hospitals of the area could be appointed; but this would reduce the choice of consultants—a choice which to practitioners and others seems desirable.

Perhaps a more promising approach could be made by trying to get "the right patient in the right bed." Consultants visiting some outlying hospitals have been impressed by the wastage of nursing skill in the admission and retention of patients in hospitals where their condition cannot be properly investigated or treated. The converse does not necessarily hold: there is a case for retaining in beds associated with the principal centres some chronic sick not in need of special investigation or treatment, both for the instruction of students and nurses and because of the difficulty of staffing hospitals which deal exclusively with non-acute conditions.

What of the beds standing empty through lack of staff? It has been too readily assumed that these beds are closed because too few recruits to nursing are coming forward. Yet last September 121,000 nurses and midwives, trained or in training, were employed full-time in the hospitals of England and Wales, compared with 115,500 in June, 1947, and 118,000 last June. The number employed part-time rose by 9000 in the fifteen months from June, 1947, and by 2000 between last June and September. Part of this increment has, however, been used to introduce, where possible, a 96-hour fortnight—which may be expected to stimulate further recruitment.

In more than one area the main trouble is that no further resident nurses can be taken on until: (1) proper accommodation has been found for those already employed; and (2) new accommodation has been bought or built for further numbers. Thus in an area with 400 of its 1600 beds unstaffed candidates are actually being turned away because no living accommodation can be found for them.

Management committees often feel that they are poorly armed for the struggle to obtain this additional accommodation and thus to bring more beds into

3. Peers, R. E. *Lancet*, 1948, ii, 1026.

operation. Prefabricated buildings can be set up only where a site is free; and in bidding for existing buildings regional boards can normally offer only the amount named by the district valuer—an amount which is almost always below the selling-price. Compulsory purchase is a long process, and the power is exercised only exceptionally; while section 2 of the Acquisition of Land (Authorisation Procedure) Act, 1946, which confer temporary powers for speedy acquisition of land in urgent cases, is not applicable here.

Mr. R. C. Millward, secretary of the Bromley group, points out that shortage of nurses is acutest in hospitals which can offer no training; the first need is to bring these into training schemes, which can be done by grouping hospitals; and the allocation of beds to the different departments may in some districts be greatly influenced by the requirements of the General Nursing Council.

THE FUTURE

It will be many years before hospitals can meet all demands. Meanwhile the guiding principle must be to send no-one to the outpatient department who can be treated satisfactorily outside hospital, to admit no-one who can be investigated and treated as an outpatient, and to retain no-one who is fit for discharge or convalescence. The most prominent trend in recent months has been towards making the outpatient department the gathering-point of all the more complex cases seen in general practice. If this trend is to be arrested, the public will have to learn that specialist services should be used with discretion, and the practitioner will have to be given leisure and encouragement to retain responsibility. If the trend is to go unchecked, a two-tier system will have to be evolved in each outpatient department, clinical assistants or registrars examining the trivial cases, and consultants concentrating on the serious.

In the wards awareness of urgency is already evident in tentative moves towards establishing "hostels" where walking patients admitted for a few days' investigation could be housed without full ward service.[4] In some areas, too, medical officers of health have been drawn into the management of hospital affairs, which helps to ensure that the fullest possible use is made of the local health authority's resources. In particular this liaison makes sure that the chronic and elderly sick are discharged as soon as the authority can take charge.

4. See leading article, *Lancet*, 1947, ii, 726.

"... a sleight of hand artist can divert our attention from one move he makes by making at the same instant another move that is spectacular and preoccupying. 'Look at the dicky bird!' is in effect a blinding command. ... Science provides us with instruments of entrancing accuracy, with oil-immersion lenses and potentiometers and spectrographs and X-rays, all of which are superbly efficient for seeing parts of the total picture. But even these remarkable instruments do not excuse us from the task of looking at the whole picture or of deciding what part of the total picture is worth looking at. Quite to the contrary, they make it seductively easy to look at something merely because it can be seen. Now even if an instrument of precision will automatically register, measure, and record a singularly active and colorful dicky bird, we may be giving all our attention to what is no better than a dicky bird for all its beautiful verifiability. If I may offer a facetious suggestion—why not add one more word to our medical dictionaries—*ornithographs*, a collective term to describe all the pictures of the dicky birds that deflect our attention from what is important, by substituting mere precision for true comprehensiveness of observation? Wrapt attention to the part is the best guarantee that the whole will be ignored. Of course when the part explains the whole, attention to it is an elegant procedure, but when the part obscures the whole, preoccupation with the part exemplifies misleading exactitude, and science at its worst."—Dr. ALAN GREGG, in an address to the American College of Physicians, April 21, 1948.

In England Now

A Running Commentary by Peripatetic Correspondents

SOME students of the generation before mine used to tour the wards with a bottle of ink suspended from the lapel of the coat and with a quill pen in hand or behind the ear. We used fountain pens. The point I wish to make is that, throughout our clinical training, emphasis was laid on observing and writing things down. As a result I find that most of my hospital contemporaries work with pen and paper (or thin cardboard) always at hand. A G.P. always has to see to a large number of things small in themselves but important to patients and to the smooth running of practice. Am I wrong or do I detect a lamentable deterioration among my juniors and betters in this salutary habit? It is so easy to take that telephone call which interrupts a consultation, make a mental note that Mrs. Somebody wants a visit, and forget to put it down on the visiting-list; or to carry out that efficient antenatal examination, dismiss the patient, and find that you can't remember her name, address, or blood-pressure; or to do that tricky little minor operation which was such fun and so successful and make no clinical note about it. What a bore it is when some insurance company or Government department wants a report about the affair six months later and you can't remember dates or details. I submit that the case for writing things down, always a strong one, is under the N.H.S. Act absolutely unanswerable.

* * *

E.B.S.: A DIRGE OR THRENODY

Beds, we adjure ye!
Say the girls of Old Jewry.

Sorry, we have none,
Says Reception at London.

We're full up too,
Says the Royal Waterloo.

Not a space to be seen
In all Bethnal Green.

Harden your hearts,
Says the houseman at Barts.

Moaning and snarls
Are all from St. Charles.

Surely some hospital must have a bed?
Here comes a G.P. to chop off my head.
(Chop, chop, chop, chop, that one's dead!)

* * *

Candidates in the recent M.R.C.P. examination, expecting inquiries into abstruse biochemistry or the most recent advances in medicine, must have rubbed their eyes at the homeliness of the questions.—Discuss the differential diagnosis of a fainting attack in a young man. On what evidence would you decide that a child of 18 months was normal both mentally and physically? Describe the treatment of hiccough.—More appropriate, they might have thought, for the layman's smattering acquaintance with domestic medicine; and indeed, though the average layman would not have thought of progressive cerebral thrombo-angiitis obliterans, which was the first cause of fainting advanced by one candidate, and would not have known about hypersensitivity of the carotid sinus, he would probably have remembered the possibility of a tight collar in this connexion. But perhaps in these days of sartorial indifference tight collars are *vieux jeu*. One aspirant, before plunging *in medias res*, asked, "What is a 'young man' and what is a 'fainting attack'?"; an admirable opening, though unhappily he omitted to answer his own questions. Ultimately we were left with the conclusion that the modern young man, while fully up to date with all the results of contemporary pathology, also embodies the swoons and vapours of the early Victorian miss.

The normal child of 18 months? I now picture the dismay of fond and anxious parents confronted with the exacting demands of the experts. On the one hand, insistence on all the positive virtues to establish a perfection to which surely no normal child could ever attain: on the other hand, the necessity to exclude all the horrors culled from the depths of pædiatric morbidity.

It was necessary to secure " a careful history " comprising at least three generations. " The child, on questioning (*sic*) may be found to have a hæmophiliac great uncle." Gargoylism, tuberose sclerosis, Tay-Sachs amaurosis, Laurence-Moon-Biedal syndrome, all of these must on no account be overlooked. An exhaustive clinical examination should include manipulation of the head for egg-shell crackling and " seeing if you can tie the child in a knot " to be sure there is no amyotonia. The claimant to normality must be subjected to every possible investigation, including, of course, a tuberculin test and a Wassermann reaction but also electrocardiography and encephalography. And a little psycho-analysis must not be forgotten.

The unfortunate sufferer from hiccough (no purist rebukingly corrected this to hiccup) must be prepared for bilateral phrenicectomy. Perhaps the scornful doctor was justified in presuming that all the homely remedies had already been tried in vain before his skill was requisitioned, since a somewhat condescending reference to these was followed by the grudging concession that sometimes this or that may prove successful. Am I right in supposing that the recommendation of a key put down the back is a confusion between hiccup (hiccough) and epistaxis? I think I realise what the candidate was aiming at in his advice to drink a glass of water backwards or upside down, though I sympathise with the bewilderment of a sufferer attempting to follow that instruction literally. Nobody mentioned forcible traction on the tongue. Does that method possess the imprimatur of Hippocrates? Even if it does, I hold no brief for it. Very early in my career I applied it in the case of a young female relative. I do not remember if it cured her hiccup (hiccough) but I remember other consequences which have restrained me from ever repeating the procedure.

* * *

As a Membership candidate of some years' sitting I deplore both the number and the quality of the influx into our regular quarterly meetings. As a *Why not chance it* boy I find the *I can get it* entry rather poor stuff. If this overcrowding goes on I can foresee the day when all G.P.'s will be failed fellow-travellers and will bore one another with tales of how they missed " Some aspects of the left adrenal " but rattled off on the " red marrow." Instead of attending to the simple needs of their patients they will be itching to diagnose by a glance and the sound of the traffic at Hyde Park Corner. But why should a chance-it G.P. worry?

* * *

CHAUCER: 1949 MODEL

A practisour there was with penne in fyste,
He had four thousand pacions on his lyste
And doctored them right spedely; to each
He gave two minutes, cutting short their speche,
Writing them scripte in Latin most impure.
He had a verray pretty signature
Which none coude rede, but noöne ever tryed.
He had a motor carre in which to ryde
And eke a bagge to hold his stock-in-trade
—Divers certificates of every shade—
These he dispensed with a lavish grace,
Writing the details in the appropriate place.
With these and him his pacions were content,
He had no neede for any instrument.
He took no trouble, but he gave none
So he stood high with high-ups everyone,
Small wonder all came floccynge to his door
He was a parfit general practisour.

* * *

If the intrinsic value of a doctor is to be measured by the number of those who feel the better for his ministrations, I wonder which of us could hold a candle to Tommy Handley, who doctored, among so many others, the doctors themselves? There are, I suppose, a benighted few to whom ITMA was not the most important event in the week, but many of us may well be wondering how we are to carry on without it. Meanwhile we must comfort ourselves with the certainty that Tommy is already setting the table in a roar with his sure, quick-fire comments in the place where all good jesters go.

Letters to the Editor

HOSPITAL MANNERS

SIR,—Having lately been an inpatient for five weeks in my own London teaching hospital (I am an ex-Service student) I can confirm that even in the best hospital there is still room for improvement in hospital manners. I have been disappointed to see no practical suggestions, apart from your admirable leading article of Nov. 13, emerging from the recent correspondence on this subject.

My opinion is that most faults in hospital manners are caused by ignorance of two kinds: firstly, the patient never knows enough about either the hospital or his own progress, and secondly, the " hospital " (i.e., its staff of all kinds) know too little about their patients' viewpoints. If this mutual ignorance is eliminated, other causes of complaint—whether because of unsuitable administration, equipment, or buildings—will also be far more easily revealed. I suggest the following measures:

1. It should hardly be necessary for all staff (doctors, nurses, students, physiotherapists, radiographers, &c.) to be told to identify themselves to patients and establish as good personal relations with them as possible. Ill people often cannot help seeming to be querulous and hypercritical.

2. Patients should at all times be kept " in the picture " as much as possible about their own progress. This could normally be the special responsibility of housemen. A patient should be told as early as possible after admission as much as he can take in regarding the nature of his illness, the treatment he will receive, and the length of time he is expected to have to remain in hospital. (This should not be interpreted, of course, as meaning that patients should be told of malignant disease or for that matter of slight hypertension and harmless cardiac murmurs.) The nature and possible consequences of any operation must be carefully explained (especially, for example, a colostomy or sterility). Many patients suffer needless worry through ignorance of the astonishing ease with which premedication and, say, intravenous thiopentone contrive to induce anæsthesia nowadays; they must be told in advance. Any changes in treatment and major investigations should be explained. Finally, before leaving hospital patients must always be given a practical summary of their diagnosis and prognosis.

3. It should be an invariable rule that for teaching of any kind, whether for a few minutes or an hour, the patient concerned must be warned in advance and his permission asked (it is almost always given in a good hospital), and afterwards, even more important, must be talked to (allaying any fears caused by misunderstood overhearing of the teaching) and thanked. The practice of many enlightened teachers of giving their larger teaching rounds in a small lecture-theatre, with patients (in bed or wheeled chair) brought in only for the necessary part of the discussion, should be more widespread.

4. Patients must be given ample opportunity *and encouragement* to ask questions and make complaints. A simple question such as " Is everything all right? " can make a considerable difference.

5. It is worth considering the idea of giving all patients and/or their relatives a small booklet on admission containing: (*a*) a general description of the hospital; (*b*) a brief outline of the functions and titles of the different medical and nursing staff, with spaces for insertion of the names of, say, the doctor in charge, houseman, ward sister, and anyone else whose name a patient might like to know; (*c*) a summary of the daily ward routine and time-table; (*d*) the correct postal address and times of delivery and collection of mail (which must of course be properly organised); (*e*) visiting-hours and any necessary restrictions of number and age of visitors; (*f*) outpatient and " casualty " hours and how and when to come to them; and (*g*) a cordial invitation to write to the hospital afterwards and make suggestions or complaints.

6. Some long-stay hospitals with a fair proportion of up-patients (such as tuberculosis hospitals) organise patients' committees concerned with, for example, meals, recreation, and general welfare. This idea should be extended and modified for all hospitals. In general hospitals dealing almost entirely with short-stay acute cases I suggest the formation of a patients' welfare committee, consisting of representatives of all branches of medical, nursing, and

administrative staff, the hospital governors, local organisations (such as municipal or county councils), and—the important point—several ex-patients of all kinds. The function of this committee would be to advise the hospital governors on any points relating to patients' welfare in the broadest sense. Ex-patient members might be selected from personal knowledge by doctors or sisters and from any who have sent in good suggestions. It would be essential to include *recent* ex-patients.

Examples of the kind of suggestions such a committee would deal with are the following:

a. Meals should not only be well cooked but also well served, with good crockery and utensils (e.g., tea in cups *and saucers with spoons*).

b. Bed-lockers must be both sufficiently commodious and accessible from beds.

c. Extra baths, wash-basins, and lavatories are often needed, especially in surgical wards with modern ideas of early rising after operation.

d. Enough towels should be provided for all patients.

e. Reasonable dressing-gowns, pyjamas, and nightgowns, not looking like prison garments, should be provided for patients who do not bring their own.

f. Bed lights must have switches easily reached by patients lying in bed.

g. Visiting-hours should be adequate (I suggest at least 30 minutes every day—say 7.30 to 8 P.M.—as well as the usual hours and Saturday and Sunday afternoons).

h. Noise from all sources (e.g., floors, screens, trolleys, portable apparatus, electric motors) must be kept to the minimum, particularly at night. Many patients find that the only disadvantage of being in a large ward is being woken often during the night because of the attention neighbouring patients need. There should be sound and light proof cubicles in every ward, used only for the few patients who need attention at night, whether it be, say, three-hourly injections, supervision of intravenous therapy, or hourly gastric aspiration. With the addition of a few such cubicles I am in favour of large wards. Unless a patient can have many visitors at all hours of the day, he is much better off with many other patients (possibly including someone already recovering from the same complaint as his own) to whom he can talk.

i. Patients are woken at 5 A.M. in many hospitals because otherwise the night nurses cannot complete all their allotted tasks in time. If some of these tasks were handed over to the far more numerous day staff, half an hour's extra work before the ward is ready might give one or two extra hours' sleep to the patients.

j. The rule that patients must not get out of bed to go to the lavatory at night and during teaching hours is obsolete and unnecessary, also causing extra work for nurses.

I hope no-one at my own hospital will misinterpret this letter; personally I was exceedingly well looked after and I am very grateful to everyone who contributed to my rapid recovery. Some at least of the above suggestions may, however, help towards raising still further the already high standard of hospital care, and I will conclude with a reminder that appreciation is almost valueless if blind.

Cambridge. K. E. HALNAN.

PREFRONTAL LEUCOTOMY

SIR,—Prof. Alexander Kennedy commenced a series of wireless programmes with a balanced and useful contribution which was of much assistance to the cause of psychiatry. In a recent broadcast under the title of "The Frontal Lobes" he gave way to his medium by allowing the introduction of a degree of sensationalism into a programme which, if it should have been broadcast at all, ought to have been factual and accurate. The fact and accuracy in the portion of the programme on leucotomy related only to a particular type of operation, although generalisations were unfortunately made as if the term "leucotomy" had only this meaning. In fact the undesirable personality changes are exceptions rather than the rule following prefrontal leucotomy, and in this sense the term "prefrontal" is important.

In your issue of Jan. 15, Dr. Ström-Olsen and Dr. Tow again repeat this fallacy. Presumably their results condemn a type of surgical operation which has been the subject of criticism in the past and will, I hope, be regarded with still more disfavour in the future; but it would be unfortunate if, as their title suggests, leucotomy was generally thought to be represented by this archaic procedure. This can, however, be only surmise, as the type of operation is not defined in their article, the landmarks by which their incisions were made are not described, and about a third of the paper is given to elucidating the terms in which their results are expressed, which in the light of these observations can have no scientific accuracy for comparative purposes.

At the recent International Conference on Psychosurgery, at Lisbon, no less than eight widely differing operations were described under the heading of "leucotomy," but the definitions of the operations were such that the results had significance and the findings were of some value. It appears in fact that the article by Dr. Ström-Olsen and Dr. Tow really refers to late social results of extensive leucotomy operations (presumably performed, in some instances, by posterior section). Again if, as one supposes, the results were based on consecutive operations, the work apparently refers to the earliest cases performed at Runwell before experience of the procedure had been gained; if this is so, it is at least historically interesting.

In their conclusion they refute the justification of a "specific" indication for the operation; it should, however, be remembered that intractable pain is an "unequivocal indication." There is apparently some distinction made between "sane and well-preserved patients" and "chronic intractable obsessionals and depressive states." It seems regrettable, moreover, that a technique should after seven years be "so relatively crude"; one wonders if this means in comparison with other types of leucotomy operation.

Finally, other methods employing only limited incisions as used elsewhere give very satisfactory results in chosen cases without any of the gross signs of deterioration being found.

Netherne Hospital, Coulsdon, Surrey. E. CUNNINGHAM DAX.

STREAKINESS OF BLOOD FILMS

SIR,—In connexion with the preliminary communication under this heading a year ago,[1] I should like to call attention to the fact that I discussed the same phenomenon in a lecture delivered in November, 1936, and published in 1937.[2] I made the following points:

1. Whenever, with impeccable technique, blood films are streaky, provided that the patient is not grossly anæmic, the erythrocyte-sedimentation rate is raised.

2. The reverse is hardly ever true; very often a greatly increased sedimentation-rate is not associated with a streaky blood film.

3. Increased plasma-fibrinogen is a cause, though perhaps not the only cause.

4. Streakiness depends not on an increase in leucocytes but only on the nature of the disease process itself. I have observed the phenomenon when there were only slightly more than 8000 white cells per c.mm., whereas in a case of myelogenous leukæmia with 660,000 white cells per c.mm. the film was not streaky.

5. The change does not depend on temperature or moisture.

6. The disappearance of this change may herald the patient's recovery, even when the number of white cells has not yet decreased.

I also said that streakiness had up to then been observed in 5 groups of disorder: (1) all purulent or severe inflammatory pulmonary conditions; (2) all severe inflammatory liver and gall-bladder disorders: (3) malignant tumours of the liver associated with substantial intermittent fever; (4) subphrenic abscess with high fever; and (5) acute gonococcal epididymitis with high fever. Since then I have also observed the phenomenon in (6) purulent inflammatory diseases of the meninges and serous membranes. Thus in surgical disorders of the abdomen, such as appendicitis, cholecystitis, and salpingitis, streakiness is a danger-signal indicating immediate surgical intervention.

Finally, I should mention a case which stands by itself.

A female patient after an injection of serum for diphtheria of the throat developed very severe serum-sickness, with

1. Boverl, R. M., Waterfield, R. L., Newman, T. H. *Lancet*, 1947, ii, 831.
2. *Geneesk. Tijdschr. Ned.-Ind.* 1937, **77**, 393.

pronounced fever and pronounced and painful swelling of the joints; the diphtheria itself was already clinically cured. The blood film was then fairly streaky. When, after about 5 days, the joints and the temperature returned to normal the streakiness was no longer detectable.

The Hague, Nov. 20, 1948. J. HAGA.

PENILE CARCINOMA AND CIRCUMCISION

SIR,—From your summary of the British Empire Cancer Campaign's annual report [1] it appears that according to Sir Ernest Kennaway, F.R.S., circumcision in Muslims is undertaken at the age of 14 years or later.

I cannot allow this statement to pass unchallenged. The majority of Muslims in India and in Pakistan are circumcised during the first month of life, and almost all Muslim children are circumcised by the age of 6 years. It is extremely rare to find a Muslim boy older than this who has not been circumcised. I think the same is true of other Muslim countries.

Department of Pharmacology, King Edward Medical College, Lahore, Pakistan. MAHBUB RABBANI.

AGRANULOCYTOSIS

SIR,—It seems that Dr. Black and Dr. Stanbury (Dec. 18) have paid too little attention to the main points in my article (Dec. 4). I should like to stress again that the most important measure in the treatment of agranulocytosis is the administration of penicillin in order to keep infection under control; with this there is often a tendency to spontaneous recovery, provided that the offending drug is discontinued.

This was demonstrated by the cases of Dr. Black and Dr. Stanbury and by my own, as is evident from an analysis of the figures and particularly the temperature charts. In each of the cases under discussion the temperature showed a definite downward tendency before the reappearance of granulocytes. Treatment with folic acid during this period of improvement did not contribute anything to recovery, which was already under way.

There is as little indication for giving folic acid as for giving pyridoxine; and the value of pentose nucleotides is doubtful.

Central Laboratory, Bulovka Hospital, Prague. J. H. WAELSCH.

INTRAVENOUS TREATMENT OF ANÆMIA WITH AN IRON-SUCROSE PREPARATION

SIR,—We should like to add some comment on our article in your issue of Jan. 1.

In the first place, our preparation was autoclaved at 15–16 lb. per sq. in., and not 115–116 lb. as wrongly stated in the text on p. 12. An important point in the whole process, given satisfactory reagents, is that the reaction is carried through with the minimal heating requisite for sterilisation. Under the conditions described, sucrose will just survive without significant breakdown. If the time of autoclaving is exceeded by even 5 minutes, or a higher pressure used, there will be caramelisation of the sugar; on completion the reagent should be cooled as soon as possible to room temperature.

In our anxiety to save space, brevity may have been carried to the point of obscurity. Knowledge of the properties of the disaccharides and of colloids was assumed, in those repeating our work, for close attention to detail in the preparation of this iron-sucrose complex is essential if breakdown of the sucrose is to be avoided. We wish to stress therefore the following points:

1. Analytical-grade reagents should be used, for though some "pure-grade" reagents may prove satisfactory, there is no certainty in this. It is especially important that the ferric chloride be anhydrous and free from hydroxy compounds or breakdown products, since it is very difficult if not impossible to reconvert them to the clear, negatively charged colloid phase.

2. The reagents must all be dissolved separately in water and added slowly, in the order given, on a water-bath short of boiling-point. Not more than a quarter-to-half the sucrose must be added until the alkali has been incorporated. If the sucrose concentration is too high in the early stages irreversible changes may occur, resulting in precipitation when autoclaved. These alterations are seen in the reaction mixture as a change from a clear red-brown colour to an opalescent, dirty greenish-brown colour.

Since June, 1948, a further 28 patients with iron-deficiency anæmia have been treated satisfactorily with a modification of the above preparation. The LD50 in mice of this new form is 8·6 ml. per kg. body-weight as against 7·4 ml. per kg. for the preparation described in the original paper. Clinically, it is much better tolerated than either our first preparation or 'Ferrivenin'; it contains less unbound alkali and has a lower pH of 9·8–9·9 as against about 10·5. The results of this work will be submitted for publication in the near future.

May we end on a cautionary note? All these intravenous iron preparations are very irritant to the subcutaneous tissues and are only tolerated by the body to the extent that the plasma-proteins are able to "bind" the iron and the blood-stream able to dispose of the dissociating alkali. Recently several patients have attended our clinic, after having had from their own doctors considerable quantities of ferrivenin injected outside the antecubital veins, with resultant phlebitis, abscesses, and stiff elbows. It is admittedly not always easy to inject these dark-coloured solutions intravenously, and proof of being fairly in the vein must rest upon a free flow-back of blood into the syringe, which is in any case not undesirable as it helps to buffer the free alkali. The use of all these preparations should ordinarily be contra-indicated in patients who do not possess at least two easily palpable veins that can be used alternately.

H. G. B. SLACK
Royal Infirmary, Manchester. JOHN F. WILKINSON.

DOSAGE OF LIVER EXTRACTS

SIR,—The account by Dr. Mollin, in your issue of Dec. 11, of relapse in a case of pernicious anæmia during maintenance therapy with folic acid, raises the question of adequate initial and maintenance therapy in pernicious anæmia.

The case reported appears to be a typical example of the treatment with liver extract required in an average case. When it was decided to use liver extract ('Anahæmin') the average red-cell count was 2,900,000 per c.mm. Anahæmin 4 ml. fortnightly was given for 155 days (plus 20 mg. folic acid daily for the first 40 days). Only after this long period was a red-cell count of 4,900,000 per c.mm. achieved. This is to be expected, for the liver-extract dosage was just sufficiently above maintenance dosage to raise the blood levels. If 4 ml. weekly—or better, twice weekly—had been given, normal levels would probably have been restored in half this period.

It is simple to raise the level in a case of pernicious anæmia to 3–4 million red cells per c.mm., but it requires much more liver extract and a longer time to restore normal levels (4·5–5·0 million in females and 5·0–5·5 million in males with normal mean cell-volume). This fact is not stressed in textbooks or teaching, though Isaacs and his associates [1] have shown it to be so.

The treatment schemes recommended by various manufacturers of liver extract—1–2 ml. fortnightly in relapse—will not restore the blood level to normal in most cases of pernicious anæmia. The levels attained with this dose are usually about 3–4 million red cells per c.mm. This is the level at which the hæmatologist finds the average case of pernicious anæmia which is receiving supposedly adequate maintenance therapy. Unfortunately patients with such red-cell counts feel and look reasonably well; and the practitioner, in the absence of laboratory facilities, believes treatment to be adequate. These subnormal levels are an invitation to the development of subacute combined degeneration.

For maintenance therapy Dr. Mollin has treated the case reported with 2 ml. anahæmin fortnightly. This is the usual minimal maintenance dosage in large blood clinics—clinics with considerable experience of liver extracts. It is also the maintenance dose of commercial

1. *Lancet*, 1948, ii, 192.

1. Isaacs, R., Bethell, F. H., Riddle, M. C., Friedman, A. *J. Amer. med. Ass.* 1938, **111**, 2291.

liver extracts which I find necessary for the great majority of cases of pernicious anæmia.

In view, therefore, of the frequency of inadequate therapy in pernicious anæmia in this country today, it is surely time that experienced hæmatologists made their views known on this matter, and that pharmaceutical firms revised their recommended dosage schedules in line with fact and not with commercial expediency. Too much liver extract cannot be given to a case of pernicious anæmia, and for treatment in general practice, where hæmatological control is usually impossible, minimal dosage should not be recommended.

In my experience, adequate treatment of the average case of pernicious anæmia requires at least 4 ml. weekly of any parenteral extract, until normal blood levels are restored—usually in 10–12 weeks. Thereafter a maintenance dose of 2 ml. fortnightly is required. If there is adequate evidence of successful maintenance treatment in pernicious anæmia with 1–2 ml. monthly of any available parenteral liver extract, I should like to be acquainted with it. Authoritative American opinion [2] appears to favour the view that very intensive treatment with 15 *U.S.P.* units liver extract should be given for at least a year before maintenance therapy is instituted!

Frodsham, Cheshire. J. G. A. McSORLEY.

NO ROOM AT THE HOSPITAL

SIR,—The fact that THE LANCET has recently carried some timely criticism of thoughtless and impersonal treatment of patients in hospital encourages me to make some further observations on the vexed problem of hospital admissions, which since your leading article must now be very much in people's minds.

A short time ago I was in part responsible for the emergency admissions to a London teaching hospital. Daily I dealt, either directly or through the Emergency Bed Service, with general practitioners and the medical officers of other hospitals who were requesting admission for their patients: frequently I had to ask other hospitals to accept cases from our casualty departments when our beds were full.

Mr. Peers, in his letter of Dec. 25, indicates clearly that the admission of emergencies has recently become more difficult because the number of beds available has decreased. In the London area general practitioners and the E.B.S. find that patients who are elderly or whose stay in hospital is likely to be long are often not accepted for admission. Sometimes application has to be made to more than twenty hospitals—a time and temper consuming occupation. At many hospitals admissions are in the hands of junior house-officers who have little conception of, and even less sympathy for, a general practitioner's difficulties. Requests are sometimes met by unnecessarily abrupt and often rude refusals. In some hospitals porters seem to deal with admissions and refuse patients without any reference to their medical staff.

I know that beds are short and I agree with Lord Amulree that this problem must be solved by making more beds available, especially for the elderly. I know also that in teaching hospitals the admission officers have an added difficulty in that their beds are divided among a large number of staff, any one of whom may have only four or six beds for teaching purposes, and who is, not unnaturally, dissatisfied if an emergency admission turns out to be an elderly patient whose main need is not investigation or special treatment but merely good nursing care for a long time. But I feel strongly that hospitals are often unnecessarily tactless and thoughtless in dealing, either directly or through the E.B.S., with outside doctors.

Under the new National Health Act there is an unfortunate tendency to separate hospital services from general-practitioner services. Many of us can see a gulf beginning to form, and one of its causes is the lack of personal contact between hospitals and outside doctors. I believe that hospitals must take the initiative in preventing the appearance of this gulf. They could well start by ensuring that practitioners are dealt with promptly, politely, and helpfully when they request admission for emergency cases, and, if the admission must be refused, that the refusal does not leave the doctor with the impression that the hospital is not interested in helping him.

Those who deal with emergency admissions should remember that they are always dealing with sick patients and often with anxious practitioners.

Penarth, S. Wales. O. L. WADE.

2. Haden, R., Bortz, D. W. *Ibid*, 1948, **138**, 870.

NEW SURGICAL AND GYNÆCOLOGICAL FILMS

SIR,—In last week's annotation on this subject you say of one film that the colour effects are good "though the clear-cut image is absent, *as always in colour films*."

This statement is completely inaccurate. Like many other ciné enthusiasts I now use colour exclusively, because of its beauty, and, like my fellow devotees, can show you thousands of feet of film with the image so clear and the stereoscopic effect so marked that you would almost feel you were looking at the original subject. I can show you shots taken at only 8 in. from the object—e.g., a small tumour $^1/_2$ in. in size being dissected by scalpel and forceps, where the scalpel blade fills half the screen yet all the outlines and details are perfectly clear and sharp. Even the copies of such films show no blurring.

Colour films with fuzzy images are due to several causes. I make no attempt to place them in any order other than that of convenience.

1. Poor or careless focusing. One has to be meticulous about this. It is the usual cause of my failures.

2. Insufficiently powerful lighting, so that a wide aperture is required. I personally aim to light the subject sufficiently to allow apertures of f 5·6 and occasionally f 4.

3. A lens which has a "soft focus." I am just replacing one of mine for that reason.

4. 16 mm. "copies" of 35 mm. film. The reason is poor technique.

5. A defective camera or lens. They are not all perfect.

No, Sir, you must retract your statement.

Manchester. W. SAYLE CREER.

THYMIDINE AND VITAMIN B_{12} IN PERNICIOUS ANÆMIA

SIR,—Microbiological methods have shown that liver extracts effective in pernicious anæmia may contain, besides vitamin B_{12}, certain functionally related substances. Of these, thymidine (thymosine or thymine desoxyriboside) was isolated from liver as a factor preventing the toxicity of "methyl folic acid"—a competitive antagonist of folic acid.[1]

It was then discovered that thymidine would replace vitamin B_{12} in the nutrition of certain lactobacilli.[2,3] Wright and his co-workers [3] believe that vitamin B_{12} functions as a co-enzyme concerned with converting thymine to thymidine. They suggest that the primary biochemical defect in pernicious anæmia may well be inability to synthesise certain nucleosides, particularly thymidine, from parent purines or pyrimidines. According to their theory the hæmatopoietic effect of folic acid in this disease arises from increased thymine synthesis,[4] which by mass-action effects yields more thymidine. They explain the effectiveness of large amounts of thymine in pernicious anæmia [5] on a similar basis.

This microbiological evidence suggested a trial of thymidine in pernicious anæmia. The pure substance is very scarce, but after a wide search a small quantity was obtained through the generosity of Dr. Thomas G. Brady, of the department of biochemistry and pharmacology, University College, Dublin.

Realising that the material, even if clinically active, might prove to be effective only in large doses, we gave the entire quantity (48 mg.) to one patient, a woman,

1. Shive, W., Eakin, R. E., Harding, W. M., Ravel, J. M., Sutherland, J. E. *J. Amer. chem. Soc.* 1948, **70**, 2299.
2. Shive, W., Ravel, J. M., Eakin, R. E. *Ibid*, p. 2614. Snell, E. E., Kitay, E., McNutt, W. S. *J. biol. Chem.* 1948, **175**, 473.
3. Wright, L. D., Skeggs, H. R., Huff, J. W. *J. biol. Chem.* 1948, **175**, 475.
4. Stokes, J. L. *J. Bact.* 1944, **47**, 433.
5. Spies, T. D., Vilter, C. F., Cline, J. K., Frommeyer, W. B. jun. *Stb. med. J.* 1946, **39**, 269.

aged 72, with classical addisonian pernicious anæmia in relapse.

During a control period of 14 days reticulocytes did not exceed 0·8% and the red blood-cell count fell to 2,360,000 per c.mm. (hæmoglobin 9·5 g. per 100 ml., mean corpuscular volume 114 c.μ, mean corpuscular hæmoglobin concentration 35·1%.) Marrow puncture showed megaloblastic erythropoiesis. Gastric achlorhydria persisted after histamine and alcohol.

The thymidine was given intramuscularly in divided doses over a period of 2 hours with no untoward reactions. There was neither clinical nor hæmatological improvement. Reticulocytes did not exceed 1·8%, and after 10 days the bone-marrow was still megaloblastic.

This complete failure to respond to thymidine could not have been due to "resistance" on the part of the patient, since she now responded well to a small dose of a known potent material—namely, 7·5 μg. of a red crystalline anti-pernicious-anæmia factor[6] which is either identical with, or closely allied to, the vitamin B_{12} of Rickes and his associates.[7] Reticulocytes rose on the 4th day, reaching a peak of 3·8% on the 6th day; clinical improvement was evident, and by the 15th day the red blood-cell count had risen from 2,330,000 to 3,220,000.

Although the reticulocytosis was submaximal the increase of red blood-cells in 15 days (890,000 per c.mm.) compared well with the expected response from similar initial red blood-cell levels, according to both the "average" formula of Della Vida and Dyke[8] for parenteral liver therapy (920,000) and our unpublished formula based on responses to red crystalline material in higher dosage than used in this instance (910,000).

Thus thymidine, which can replace vitamin B_{12} in the nutrition of certain bacteria, has proved ineffective in pernicious anæmia, at least in this case and in the dosage given.

Royal Victoria Infirmary, Newcastle-upon-Tyne. C. C. UNGLEY.

HOSPITAL BIOCHEMISTS

SIR,—I suggest that your correspondents, "Ph.D." and "Clinical Biochemist," are arguing about names rather than functions to be carried out by an individual. The "hospital biochemist" in the routine laboratory must be a reasonably competent chemist, but his functions are: (1) to maintain the accuracy of well-standardised procedures; (2) to select suitable new methods for adoption; and (3) to act as a consultant and to undertake clinical research. The routine laboratory is not a suitable place in which to conduct fundamental chemical research.

These functions do not require a man highly trained in chemistry; the more abstruse branches of kinetic theory, or of thermodynamics, are not needed: a good general knowledge of descriptive chemistry, some knowledge of physical chemistry, and a wide knowledge of human physiology and of some branches of analytical chemistry would suffice. I need hardly point out that all medical graduates study chemistry to about the standard required for a general B.SC.

The chemist has received a fundamental training in which physical chemistry plays a large part, while analytical chemistry receives very little attention, and human physiology is almost completely neglected, unless special courses are attended. I well recollect the hard study I undertook when, as a non-medical chemist, I entered the clinical laboratory at St. Bartholomew's Hospital; it was nearly a year before I was any use to the department.

I submit that for routine laboratories the advantages of a medical graduate outweigh the disadvantages encountered when he is not chemically qualified. For research laboratories there is little doubt that the reverse is true; and broadly speaking, professors are expected to undertake research, not routine work.

Finally, it is an error to suppose that senior hospital appointments will be given to anyone 3 years after qualification. A more reasonable estimate would be 2 years' clinical work, followed by 4 years in the laboratory with approximately registrar status, and 2–5 years as a senior assistant—a total of 12–16 years from entering the university or medical school. The medically trained man attains these senior positions at ages between 32 and 40—not earlier. If "Ph.D." expects to receive a senior hospital appointment at the age of 26, he is indeed an optimist.

Central Middlesex Hospital, London, N.W.10. GEORGE DISCOMBE.

6. Smith, E. L. *Nature, Lond.* 1948, 161, 638; *Biochem. J.* 1948, 43, 3.
7. Rickes, E. L., Brink, N. G., Koniuszy, F. R., Wood, T. R., Folkers, K. *Science*, 1948, 107, 396.
8. Della Vida, B. L., Dyke, S. C. *Lancet*, 1942, ii, 275.

A WALKING-CHAIR FOR SPASTIC CHILDREN

SIR,—The letters from Dr. Dunham and Mrs. Collis in your issue of Dec. 11 very rightly stress that in cerebral palsy the first and most important part of therapy is thorough movement training. Without this training, faults of posture and coördination perpetuate themselves.

The device I described was intended as an adjunct to this régime. When the spastic child first bears weight his muscles are subject to unaccustomed stress and their patiently acquired control is often inadequate. If this stress can be reduced by the suspension device, full control is possible. As muscular control becomes sufficient to deal with increased stress the "lift" can be reduced, and when control is adequate with full weight-bearing the machine is discarded. Thus apart from palliative use in the severest cases the machine should only be used in the first month or two of weight-bearing exercises.

I should like to emphasise that machinery can provide no short cuts in treating spastics. In no condition is more patience demanded of the teacher and the taught; fortunately the reward of this patience is great.

Darlington. PHILIP WRIGHTSON.

NURSING EXPERIENCE FOR MEDICAL STUDENTS

SIR,—The differences of opinion expressed in your correspondence columns on the suggestion to give medical students a short course in practical nursing recalls the period of three months when I was a clinical clerk to Dr. Samuel West at St. Bartholomew's Hospital.

I was fortunate enough to have rooms in the old residential part of the hospital, where some twelve students lived; so I was "available" night and day. The sister of the men's ward, who was a bit of a tyrant in some ways, got two of us to attend in her ward when needed, and she taught us how to nurse. We had three or four cases of typhoid fever and some pneumonia at the time, and we had to turn out when called and attend to them.

Under the supervision of sister I learned how to change the bed of a severely ill patient with typhoid who had got a "dirty bed." I learned the right way to lift a patient, how to make a linseed poultice for lobar pneumonia and get it on hot, how to keep temperature charts neatly, and many other small but important details of nursing. I remember how I hated it all at the time; but now, some 35 years later, I am grateful to that sister. As a G.P. I have had many an opportunity of applying her teaching to the benefit of a patient.

In my early days, I remember, I was called to see an old woman on my panel list who was lying in a dirty bed with the clothes all tumbled about. I set to work and remade that bed and made the patient comfortable, but her attitude was far from grateful. It was not a doctor's job to make beds. During the past 28 years I have been an officer in the St. John Ambulance Brigade and have given many courses of instruction in first-aid and also in home nursing as well as judging competitions which involved putting an injured person to bed; and I feel I could not have judged fairly without the knowledge I had gained. I do not profess to be a "trained nurse," but am sure I have been a better family doctor owing to that early training.

It may well be that in these more advanced times a G.P. is too busy to spend a little time in bed-making or showing the relatives how to make a patient really comfortable, but I can assure anyone who cares to undergo a short training that he will be amply rewarded. Times have changed and the syllabus is grievously overloaded with items which must be studied in order to satisfy examiners. Yet one cannot help noticing that

the young men today lack knowledge of those small but important niceties of practice which help the sick so much.

Now that psychiatry and psychotherapy are all the rage it seems to be forgotten that much of the "bedside manner" was, and still is, based on them, and that making a sick person comfortable in body is half way to making him mentally so.

Bournemouth. CHARLES MORSE.

SIR,—If, by the time a medical student reaches the final year, his powers of observation are so poor that three and a half years' attendance (and probably some periods of residence) in the wards and hospital have not shown him the fundamentals of nursing practice without recourse to a three weeks' special instruction, then I do not believe that he is a fit person to practise medicine in the world outside, where, so my teachers say, the observations of the general practitioner are the first step in the elimination of disease.

Medical School, Birmingham, 15. JAMES R. CROSS.

SIR,—The opinions expressed by Mr. Carruthers and Mr. Richardson in your issue of Jan. 8 have been rightly condemned in your editorial comment. In the introductory course which a student of this hospital attends after completing the preclinical part of his training, a short course in practical nursing has been included for the past nine months. On the whole the students of this hospital have liked it, and a number have suggested that more time should be devoted to it.

D. HANBURY.

Department of Medicine, Middlesex Hospital, London, W.1.

CRASH HELMETS

SIR,—Letters I wrote to a lay paper on the use of crash helmets by motor cyclists, has brought the following points to light:

1. The motor cyclist is completely indifferent to the value of a helmet; each is sure that he or she will never be involved in an accident. If hunting people wear bowlers and "toppers" against falls, surely it is not too much to expect the cyclist to wear a helmet.

2. No-one knows who stocks helmets; and I have been unable to discover any shop or garage which keeps them.

3. The pattern used by "dirt-track" riders is far too expensive, costing £6–9; and it is uncomfortably hot and heavy.

4. It is impossible to make the crash helmet compulsory. Mr. David Eccles, M.P., points out that if—as happens—workers in certain dusty industries disregard masks the wearing of which is supposed to be compulsory, it would be even more difficult to enforce the use of these helmets by law.

5. The Automobile Association is "not convinced that the compulsory use of the crash helmet is necessary in the interests of road safety."

6. The only possibility of enforcing the use of the crash helmet lies with the insurance companies, which could refuse to pay for injuries sustained through non-usage of the helmet; they are not very keen on insuring motor cycles at the best of times.

Sir Hugh Cairns has stated that 85% of all fatal motor-cycle accidents involve the skull and/or brain. These figures are serious enough to warrant these helmets. A large number of motor cyclists are between the ages of 16 and 25—men and women who are just becoming useful members of society. The motor cycle, probably more than any other means of locomotion save flying, gives the impression of infinite power; it behoves us to save these young people from their foolhardiness.

Through the kindness of Mr. H. Duff, of the Army Recruiting Office, I examined the ordinary Army crash helmet, which he assures me has saved many a man's life. It is made of papier mâché; inside are pieces of webbing which rest on the head, a wide space separating the skull from the helmet. Round the edge is pleated crêpe rubber, again separating helmet from head. Mr. Duff says that the weight is not noticed up to 2 hours; after a long day's riding, however, it feels heavy and headache tends to develop. Once popularised, the helmet should sell at about 15*s*.

Maxwelltown, Dumfries. A. P. BERTWISTLE.

OSTEOPATHY

SIR,—I should like to associate myself with the suggestion implied by Batchelor and Cohen, in their report of Dec. 25, that manipulation should form part of the normal treatment carried out at any hospital. The fact that the words used by osteopaths to describe their concept of the lesion are not those used by orthodox medical men does not invalidate the modicum of truth in osteopaths' claims—namely, that manipulation of a spinal joint is sometimes a useful therapeutic measure. The results of treatment impress patients more than the scientific accuracy of diagnosis, and many a manipulation by an osteopath, based though it often is on the mistaken supposition that a bone is out of place, has abolished long-standing pain.

For the past ten years it has been my hope and endeavour that physiotherapists should be taught manipulation of joints, thereby eliminating the need for lay manipulators. Dr. J. B. Mennell taught manipulation to the physiotherapy students at St. Thomas's Hospital before the war, and I have continued similar tuition ever since. It is my view that any patient cured by a manipulation by an osteopath should have been cured by the same manipulation given by a physiotherapist [1] or a medical man. To this end, weekly demonstrations are given in our department to medical students, and practical classes form part of the routine work of the physiotherapy students.

One of the A.M.O.'s now working in this department took the postgraduate course for medical men at the London College of Osteopathy, and it is clear from his opinions and his technique that a satisfactory level is attained. Many of the methods taught to him are very similar to my own, but osteopaths appear sadly to neglect strong traction as an important adjuvant to manipulations calculated to reduce intra-articular displacements, especially at the spinal joints and knee. Traction increases effectiveness and safety, thus facilitating undergraduate instruction. I believe that some of osteopaths' methods have been considerably improved upon.[2]

The institution of our health service has drawn urgent attention to this problem [3]; for the State has now assumed responsibility for all medical care. Thus a doctor may well order manipulative treatment for a number of common conditions (e.g., tennis-elbow [4] or a displaced fragment of intervertebral disc [5]) only to find that there is no medical auxiliary in his district acquainted with the proper techniques. This situation plays the medical and physiotherapy professions into the hands of lay manipulators, many of whom are now forming themselves into associations expressly to obtain State recognition.

Clearly manipulators—most of them self-styled—fill an important gap in medical treatment, which the London College of Osteopathy is laudably helping ethically to close. But at the present rate it will take centuries to replace the 3000 or so laymen concerned. The dilemma for the State, and the present threat to patients' welfare and purse, would be quickly resolved if physiotherapy students were all taught manipulative technique as a matter of course. In this simple way persons of varied skill and competence could be quickly replaced by properly qualified medical auxiliaries.

JAMES CYRIAX
Physician to the Department of Physical Medicine.

St. Thomas's Hospital, London, S.E.1.

SIR,—May I comment briefly on the letter which you published on Jan. 8 from the editor of the *Osteopathic Quarterly*?

The London College deviates from ordinary osteopathic educational standards in that instruction is confined to a postgraduate course for registered medical men, working on the assumption that it is neither necessary nor feasible to teach all the basic subjects to a student who has already passed these subjects in a recognised

1. Cyriax, J. *Physiotherapy J.* 1947, Jan., p. 102.
2. Cyriax J. Deep Massage and Manipulation Illustrated. 4th ed., London, 1948.
3. Cyriax, J. *Brit. med. J.* 1948, i, 362.
4. Mills, G. P. *Ibid*, 1928, i, 12.
5. Cyriax, J. *Lancet*, 1945, ii, 427.

medical institution. The only exception to this is where the application of the osteopathic principle may necessitate greater clarification beyond ordinary medical teaching. The curriculum clearly covers all subjects thought necessary to give the medical graduate a complete knowledge of osteopathy. The teaching staff has been principally those practitioners, medically qualified and otherwise, who are in practice in London and the near provinces. It is admitted that all instruction can be improved, and it will be improved in the near future.

In view of the educational standard of the college, it is not expected or desired that it should be recognised by the Council and Register of Osteopaths.

The American Osteopathic Association definitely recognise and appreciate that the London College has established a new principle, admittedly experimental, in osteopathic education, which must be tried out and developed before recognition by the American Osteopathic Association can be granted. The desire of the British Osteopathic Association in sponsoring the college is to see osteopathy an integral part of general medical education and practice, and it is felt that the present method is a sure way to this end. The main object of members of the British Osteopathic Association in supporting the college is the desire for the future expansion of osteopathy, with all its benefits to humanity.

In conclusion, I would like to point out that it is not correct to say that the college only possesses one student.

London College of Osteopathy, N.W.1. A. F. LOCKWOOD Secretary.

SIR,—I must reply to your comment on my letter published last week.

I have been interested in osteopathy for more than 16 years and have not only read textbooks on the subject but also have seen osteopaths with various kinds of qualifications at their work. Their claims as to special skill at manipulation are as fantastic and as unsubstantiated as is the theory of osteopathy. They claim that the basis of the manipulation of the spine is what they call "isolation of the vertebræ," and that, just as a man can take each of his fingers in turn and pull and twist them, so they can isolate a vertebra and lift it up, twist it, turn it and push it back into place. Hugh Owen Thomas and others long ago exploded the idea of magical fingers feeling lesions which nobody else can feel and doing manipulations which are completely divorced from what we know of anatomy and physiology.

But, Sir, my quarrel with you is not so much over the truth or otherwise of the rubbish of the osteopaths, but with your encouragement of their ridiculous claims; for the word will go forth that THE LANCET on Dec. 25, 1948, wrote in a leader: "'About things on which the public thinks long,' said Samuel Johnson, 'it commonly attains to think right.' And we have to accept the fact that public opinion has come to lean on osteopaths for several types of treatment; that kings, nobles, and the common people patronise them;" and also "The new college [of osteopathy] can be regarded as a creditable attempt to organise and evaluate osteopathic ideas, and to curb the opportunist or the quack, and to this extent the enterprise appears commendable." You also ask that osteopaths be called in to train orthopædic surgeons in special osteopathic manipulations. Do you realise that every osteopath will now be able to claim—and they will not be slow or quiet in their claims—that the orthopædic surgeons of the country, being unable to treat their patients properly, have been forced at last to call in the help of the osteopaths. I feel certain that when you commissioned Batchelor and Cohen, and when you wrote your leader, you must not have realised the implications of your act.

Any medical man who reads textbooks on osteopathy must realise the worthless nature of the osteopaths' claims, their ridiculous ideas on ætiology and pathology, and their danger to all patients who are unfortunate enough to come in contact with them. Any medical man must therefore view with grave suspicion, to say the least, the intelligence or motives of any qualified medical man who takes up osteopathy. To have any truck with osteopaths is to endanger the good repute of the medical profession.

Perhaps the final word on osteopathy was said by a Sheffield unqualified practitioner, who had under his name on his plate: "Osteopath, Naturopath, Psychopath."

SIDNEY PAPPWORTH.

Orthopædic and Accident Dept., City General Hospital, Sheffield.

REGIONAL REPRESENTATION ON THE JOINT TUBERCULOSIS COUNCIL

SIR,—The letter from Dr. Gray in your issue of Jan. 1 criticises the Joint Tuberculosis Council for (*a*) postponing any decision with regard to regional representation on its council for a period of six months, (*b*) refusing representation to the newly founded Liverpool Regional Tuberculosis Society, and (*c*) having an unrepresentative constitution.

By the council's constitution all existing clinical tuberculosis associations and societies are represented, the only exceptions being those associations having limited constitutions—e.g., areas of membership limited by local-authority boundaries. The council's interests are wide and are not limited to terms and conditions of service; in fact these in the past have comprised only a small fraction of the council's work. It is not necessary to detail the subjects considered by the council as these are faithfully reported in your journal from time to time.

Rule 5 of the constitution restricts the size of the council; a large deliberating body would be unwieldy and would make it impossible to conduct business in the limited time available for meetings. To avoid delay, Liverpool members of the North-West Tuberculosis Society should put their views forward to that body, whose representatives could then bring them before the Joint Tuberculosis Council. This is the constitutional and most rapid and effective way of proceeding.

It was foreseen that regional groupings would probably result in the formation of new clinical societies and that these societies would seek membership of the council. There is ample time for the new societies to show their worth before any question of displacement of the old and tried clinical associations in favour of the new bodies is considered.

It is appreciated that the Joint Tuberculosis Council is not primarily constituted to consider terms and conditions of service. The only reason that the council is taking an active part in work of this nature at the present time is the absence of representation of tuberculosis workers on the Central Consultant and Specialists Committee and the lack of an alternative avenue of approach other than through the tuberculosis group of the Society of Medical Officers of Health. This latter body is better constituted to deal with such matters as terms of service, but joint action is taking place at the moment to ensure full support for the representations to be made.

D. P. SUTHERLAND Chairman.
N. J. ENGLAND Hon. Secretary.

Joint Tuberculosis Council, Oxford.

RADIO TRANSMISSION OF ELECTRO-PHYSIOLOGICAL PROCESSES

SIR,—At this hospital we have for some time been carrying out experimental radio transmission of the electro-encephalogram and electrocardiogram. We feel it would be of interest to describe briefly what is in progress at our centre, particularly because many may see applications to their own problems of the ideas we have in mind, and it would help us to know the scope of such possible applications.

Since September, 1947, when a licence was obtained from the Post Office, we have carried out numerous radio transmissions of electrophysiological processes of the body—particularly the electro-encephalogram and electrocardiogram. The encephalogram or cardiogram is radio-transmitted direct from the patient to another part of the hospital where it is received and recorded. We are now experimenting with portable transmission, to see whether the encephalogram or cardiogram can be

transmitted from the subject while he goes about his normal, or specially selected, activities. Clearly such ambulatory transmission would offer openings for further physiological studies.

In discussing this subject with others we have found that the question of telepathy is usually raised. On theoretical grounds there is no justification for believing that radio transmission of the electro-encephalogram is likely to assist telepathy. Nevertheless, some will probably wish to repeat previous telepathic experiments with the subjects transmitting their electro-encephalograms to each other during the experiments.

C. C. BREAKELL
Whittingham Hospital, near Preston. C. S. PARKER.

Public Health

Influenza

DEATHS certified as due to influenza in the 126 great towns of England and Wales rose to 47 in the week ended Jan. 8, compared with 29 in the previous week. This rise is not disproportionate for the season and suggests that virus influenza had not reached epidemic proportions.

Spread in Europe.—Influenza has spread across Europe from the south-east. The disease appeared in Italy early in December and had crossed to the Haute-Savoie by about Dec. 15. It spread up the eastern border of France between the 15th and the 20th, and jumped to most of the country sparing only a few departments. It seems that it was not present until about the 20th in Paris, where the attack-rate became appreciable about Christmas; here it took about a fortnight for the disease to reach a maximum, where it has remained. There is so far no sign of regression. A conservative estimate of incidence in the population of France up to the present is 15%. Some communities have experienced attack-rates up to 30% or even 40%.

The spread to the northern European countries continues. In Holland the disease entered Eindhoven on Dec. 31, and it appeared in Leyden a week later. Outside France and Italy, according to telegraphic reports received in Geneva up to Jan. 11, there had been no abnormal influenza increase in Scandinavia, Spain, Hungary, or the American Zone of Germany. The disease was prevalent in the Vorarlberg Tyrol of Austria. In Switzerland 13 cantons were affected, particularly Tessin, Geneva, and Basle. To the east there were small foci in certain towns in Turkey but no epidemic. In northern Europe the epidemic was still confined to south Holland.

Clinical Features.—The disease in France is typical influenza, easily distinguished from the benign seasonal catarrhs. The average case begins abruptly with headache, weakness, muscle pains, and fever. Apart from a little sore throat, signs referable to the respiratory system are few at onset. In the average case the illness lasts a week, followed by some debility which may extend convalescence. Complications are few and encephalitis has not been reported. Secondary pulmonary complications have killed elderly people. A few deaths from acute pulmonary œdema in the first thirty-six hours of the illness, particularly in children under 2, have been mentioned.

Virology.—In a previous announcement virus B was mentioned. It now seems more probable that the virus mainly responsible is more closely related to type A. Identification experiments at the World Influenza Centre laboratory at Hampstead are incomplete.

Diphtheria in 1948

In England and Wales diphtheria mortality last year was the lowest on record. In the 126 great towns, which cover about half the population, deaths numbered 100. Notifications totalled 5182—also a new low record. In 1941, the year in which the immunisation campaign got under way, deaths and notifications in the great towns numbered 1487 and 27,613 respectively.

Food-poisoning from Lamb's Tongue

An account of food-poisoning affecting 50 of 1072 people who ate lamb's tongue in a factory canteen has been given by Miss Betty Hobbs, PH.D., and Dr. Mair Thomas.[1] Those affected had acute vomiting and diarrhœa accompanied by abdominal pain, weakness, and, in extreme cases, shock and collapse.

The tongues had been received frozen in sacks. Soon after receipt they were removed, washed, and allowed to thaw. They were then boiled for 2½ hours, spread out on trays, and, when sufficiently cool, skinned by hand. The skinned tongues remained spread out on trays for a further 2–3 hours until cool enough to be placed uncovered in the cold-room. The next morning the tongues were removed and sliced by one member of the staff, who held them by hand. The slices were put on to cold plates, vegetables were added, and each plate was put into the hot-plate container; the gas in the container was lit an hour before the meal, the temperature in various parts of the container ranging from 42 to 160°C.

From tongues which had been left over were isolated coagulase-positive staphylococci type III (c), phage-type 42D. Two persistent hand carriers and one intermittent nose carrier of the infecting staphylococcus were found among the kitchen staff who had helped to skin the tongues; and this staphylococcus was frequently isolated in large numbers from cuts and abrasions on the skin of the two hand carriers. The same organism was found also on table tops and in floor dust. The authors conclude:

> "The outbreak was due to faulty handling of a meat product cooked the day before it was intended to be eaten. These errors in food-handling are usually made in ignorance, and it is possible that they could be prevented by teaching food handlers the elementary requirements of good food hygiene."

Obituary

ALEXANDER BROWN JAMIESON

M.B. EDIN.

Dr. A. B. Jamieson who, since 1919, was a member of the tuberculosis medical staff of the Lancashire county council, died at his home at Great Eccleston, on Dec. 16 last. He received his medical education at the University of Edinburgh, where he graduated M.B. in 1910. After joining the staff of the council as an assistant T.O., he worked in the districts served by dispensaries at Eccles, Leigh, Stretford, Farnworth, and Pendlebury, and also at the Peel Hall Pulmonary Hospital, Little Hulton. In 1945 he was appointed a member of the senior staff and became the medical superintendent of the Elswick Sanatorium, near Kirkham, and consultant tuberculosis officer for the Fylde dispensary area. When the Manchester Regional Hospital Board established an enlarged dispensary area bringing in Blackpool county borough, Dr. Jamieson also became the chest physician of the Victoria Hospital in that town. He leaves a widow and one son.

Mr. S. F. A. COWELL, for many years secretary of the Royal College of Surgeons of England, died at St. Albans on Jan. 13 at the age of 85. The son of Dr. T. W. Cowell, he was educated at Westminster School and University College, Oxford. Soon after taking his B.A. degree in 1886, he joined the staff of the college as assistant secretary, a post which he held till in 1901 he succeeded Edward Trimmer as secretary. He retired in 1934. The college and its welfare was the centre of his whole life, and as a loyal and conscientious official he took care to husband its resources and to safeguard its position. His work was done with charm and kindliness which will be gratefully remembered by many.

The death is announced of Dr. C. F. GOOD, C.B., of the Ministry of Health, the principal medical officer in charge of the insurance medical service.

1. Hobbs, B. C., Thomas, M. E. M. *Mon. Bull. Min. Hlth. P.H.L.S.* 1948, 7, 261.

Notes and News

CLASSIFIED ADVERTISEMENTS

THE number of medical appointments advertised at the end of THE LANCET is rising; and it is more than ever necessary that advertisements should be classified so that the reader can quickly find those that interest him. In and after our issue of Feb. 5 we shall group short advertisements under the following headings:

1. Academic and Educational.
2. Hospital Services: Senior Appointments.
3. Hospital Services: Junior Appointments.
4. Public Appointments.
5. General Practice.
6. Appointments: Too late for Classification
7. Miscellaneous.

The two sections covering hospital appointments will have groups for London and Provinces, and the appointments will, normally, appear under the name of the hospital at which they are to be held. This will sometimes necessitate small changes in the form in which the advertisement is submitted; but the advantages of an intelligible scheme are such that we hope these changes will be tolerated. Any form of classification presents practical difficulties, and none can be wholly logical. But we hope that, with or without later modification, the system now to be introduced will commend itself both to advertisers and readers. We ask for their forbearance at first.

PRECOCTIC

IN the paper on macrocytic anæmia in relation to ancylostomiasis, which we published last week, Dr. H. Lehmann sought to introduce the term "precoctic" to describe cells emitted from the bone-marrow before they are fully ripened (*coctus* = ripened or cooked). His intention was defeated by an unfortunate mischance which led to the word appearing, throughout his article, as "coctic." We much regret this mistake, which must have confused readers. It originated in a discussion whether "pre-" was the prefix that would best convey Dr. Lehmann's meaning: by analogy with "precocious," similarly derived, it might perhaps be held to imply that the cell was already fully matured. Dr. Lehmann decided that "precoctic" was on the whole preferable to "antecoctic," or the hybrid "acoctic," which were possible alternatives, and we intended to convey this decision to our printers. Only through a series of accidents did the word appear without any prefix at all.

Dr. Lehmann's paragraph introducing the word should have read as follows:

> The reticulocytes and cells in the early postreticulocytic stage are here called precoctic cells. By precoctic blood picture is meant one due to a condition where large cells are produced in regeneration, the macrocytosis not being due to a disturbance of bone-marrow function by the absence of essential nutrients but being, on the contrary, caused by a hyperactivity of the marrow which leads to an emission of slightly "unfinished" cells (*coctus* = fully mellowed). To call these cells immature might suggest an inhibition of cell production at the nucleated stage, and the term "regenerative" would not differentiate from a state where regeneration proceeds without macrocytosis.

JOURNAL OF PHARMACY AND PHARMACOLOGY

THE Pharmaceutical Society's *Quarterly Journal of Pharmacy and Pharmacology*, which came into being in 1928 as the successor to the Yearbook of Pharmacy, has now been replaced by a monthly, the *Journal of Pharmacy and Pharmacology*, edited by Dr. C. H. Hampshire. The new journal, of which the first issue appeared this month, is obtainable, at a cost of £2 per annum or 5*s.* for a single copy, from 33, Bedford Place, London, W.C.1.

University of Oxford

On Dec. 16 the following degrees were conferred:

D.M.—A. E. Mourant.
B.M.—H. E. Reiss, D. F. Mullins, M. H. Hall, Joan W. Kipling,* Janet E. McKinstry.*

* In absentia.

Royal College of Physicians of London

Dr. Marc Daniels will deliver the Milroy lectures on Tuesday and Thursday, Feb. 15 and 17, at 5 P.M., at the college, Pall Mall East, S.W.1. He is to speak on Tuberculosis in Post-war Europe.

University of Glasgow

On Jan. 15 the following degrees were conferred:

M.D.—G. C. Arnell, K. C. Hutchin, A. W. Lees, George Leslie, J. S. Stevenson.

M.B., Ch.B.—A. H. Alexander, C. I. S. Bartlett, Mary P. S. Borland, Lucy McL. C. Boyd, Mary B. S. Calder, Adam Carnochan, Mary E. Catto, Agnes A. Coughtrie, R. McL. Douglas, W. I. L. Fraser, G. L. Gibson, D. A. Haldane, Mary M. Hamilton, A. C. Howie, A. N. Hunter, Bernard Joels, Elizabeth M. S. Kilpatrick, Anne K. Kirkland, D. A. Knox, R. R. Lang, D. McC. Macgregor, John MacKay, A. M. Mechie, A. P. Miller, A. R. Morrison, John Morton, J. J. Mullen, P. R. Probert, J. D. Read, H. A. Roemmele, Leslie Rose, Christina C. Stevenson, I. O. Stewart, James Stewart, J. A. M. Stewart, R. E. Stewart, W. S. Stoddart, Peter Stuart, H. W. Thomas, D. B. Turnbull, J. M. Uku, James Wright.

Royal College of Surgeons of England

At a meeting of the council held on Jan. 13, with Lord Webb-Johnson, the president, in the chair, Prof. J. R. Learmonth was admitted to the honorary fellowship. Mr. J. E. Piercy (London), Prof. V. F. Lambert (Manchester), Mr. Norman Hodgson (Newcastle-on-Tyne), and Mr. G. H. Buckley (Blackpool), being fellows of the Royal College of Surgeons of Edinburgh, were elected ad eundem to the fellowship.

A diploma of fellowship was granted to A. G. Jessiman, and of membership to D. N. H. Owen and I. S. Waller. The following diplomas were granted jointly with the Royal College of Physicians:

D.L.O.—G. G. Allan, M. D. Cremin, K. H. Dalrymple, P. G. Jay, Parimal Kumar Khasnobis, R. M. Lang, H. A. J. Lister, Ilija Lopert, W. R. McKechnie, V. St. J. de C. Magian, W. H. Mirkin, Constance B. S. Napier, Man Mohan Nath, S. S. Ovanessoff, W. M. Owen, R. E. Peasegood, Aubrey Schiller, Ching Tuan T'ang, R. H. Welch, T. J. Wilmot, I. S. Young.

D.I.H.—William Blood, L. B. Bourne, J. A. Harrington, A. K. Hill, W. T. W. Lawson, R. F. L. Logan, A. C. Mackay, George Milne, J. G. Mott, Haridas Mukhopadhyay, A. J. Patterson, Joti Ranjan Sen Gupta, George Taylor, Margaret E. Thwaytes, T. E. M. Wardill, Norman Williams.

D.P.M.—J. C. Baillie, R. F. B. Bennett, F. H. Bodman, E. A. Burkitt, F. R. M. Calder, Sydney Catterall, G. I. Davies, R. H. Gaman, J. K. Hewat, R. M. Jones, F. J. Kelleher, Harold Lantin, Ivan Leveson, Amedeo Limentani, S. C. MacMillan, J. W. Macpherson, D. H. D. Paine, R. A. Sandison, R. B. Taylor, W. N. Taylor, D. C. Watt, Alexander Wood, C. M. Xavier, F. L. D. Young.

D.M.R.D.—D. M. R. Barry.

D.A.—R. V. Sturton.

Faculty of Anæsthetists.—The following were elected to the fellowship:

Dr. George Feneley, Dr. A. Parry Brown, Dr. H. Grant-Whyte, Dr. Geoffrey Kaye.

Faculty of Dental Surgery.—A course of lectures on anatomy, applied physiology, and pathology in their application to dental surgery, and on dental histology will begin on Jan. 24 and will continue until Feb. 18. Further particulars may be had from the secretary of the faculty.

Association of Surgeons of Great Britain and Ireland

The annual meeting of the association will be held in Dublin on May 26, 27, and 28 under the presidency of Prof. H. S. Meade. The programme includes discussions on Surgical Ritual (opening speakers, Sir Hugh Cairns, Sir Reginald Watson-Jones, Mr. Julian Taylor, Mr. F. Gill, and Mr. D. M. Douglas), Use and Abuse of Streptomycin, and End Results and Treatment of Injuries to Peripheral Nerves (Mr. H. J. Seddon).

Royal Faculty of Physicians and Surgeons of Glasgow

At a meeting of the faculty on Jan. 10, with Dr. W. R. Snodgrass, the president, in the chair, the following were admitted to the fellowship: Max Benjamin Schwartz, Transvaal (qua physician); and William Woolf Frank, Queenstown (qua surgeon).

Faculty of Anæsthetists

The first annual meeting of the faculty will be held on March 16, at 3.30 P.M. At 5 P.M. the first Joseph Clover lecture will be given by Mr. A. D. Marston. On the same day the first anniversary dinner will be held; all fellows and members of the faculty are eligible to attend.

Scottish Surgical Pædiatric Club

The first meeting of this society was held in Glasgow on Dec. 17 and 18 and was attended by 27 members, who came from Aberdeen, Dundee, Edinburgh, Glasgow, and Inverness. A dinner was held in the Royal Faculty of Physicians and Surgeons on the 17th, and the next day four papers were read at the Royal Hospital for Sick Children in the morning, and clinical and pathological demonstrations were held in the afternoon. The next meeting will take place in Aberdeen in May.

Harveian Society of London

The Buckston Browne prize for 1948 has been awarded to Dr. V. C. Medvei, for his essay on the Mental and Physical Effects of Pain.

Royal Institute of Public Health and Hygiene

On Thursday, Feb. 10, at 7.30 P.M., in the College of Art and Technology, at the Newarke, Leicester, Dr. J. Browning Alexander will deliver a lecture on the Catarrhal Child.

North of England Otolaryngological Society

A clinical meeting of this society will be held at the Eye and Ear Infirmary, Myrtle Street, Liverpool, on Saturday, Jan. 29, at 2 P.M.

London County Medical Society

At a meeting of the society held on Jan. 5, the following officers were elected: president, Dr. C. D. Coyle; vice-president, Mr. Iain Matheson; treasurer, Dr. L. T. Hilliard; secretary, Mr. J. Gabe.

Institutions Renamed

The Board of Control have decided that the Rampton State Institution, Retford, Notts, shall be renamed Rampton Hospital for Mental Defectives; and Moss Side State Institution, Maghull, near Liverpool, is to be renamed Moss Side Hospital for Mental Defectives.

Life Assurance Medicine

The third International Congress of Life Assurance Medicine will be held in Rome from June 6 to 9. The following subjects have been chosen for discussion: Medical Examination on Life Assurance (Openers, Prof. H. Courcoux, Paris, Dr. R. de Beden, Trieste); Influence of Heredity on Mortality (Prof. R. Sand, Brussels, Prof. V. Bisceglie, Catania); Heart Diseases and Life Assurance (Dr. H. D. E. Milders, Rotterdam, Dr. Terence East, London, Dr. J. R. B. Hutchinson, Washington, Dr. V. Mortensen, Copenhagen); Lessons of the War in Relation to Preventive Medicine (Prof. C. Richet, Paris, Dr. F. Kaufman, Zürich, Prof. G. Mazzetti, Florence, Dr. A. Starna, Rome). Further information may be had from the secretary of the Life Assurance Medical Society, Dr. Kenneth Dickson, 3, Lombard Street, London, E.C.3.

Dispensing in Hospitals

In many hospitals prescriptions for members of the staffs, if issued by one of the medical staff, are dispensed by the hospital pharmacist. The Ministry of Health announces that there is no objection to this practice. In some instances, however, hospital pharmacists have joined the pharmaceutical list of the local executive council in order to dispense N.H.S. prescriptions for the staff; the Ministry says that this is unnecessary and advises those who have joined for this reason to resign. N.H.S. prescriptions dispensed by hospitals should not be sent to the executive council or pricing officer of the area.

Hospitals in the National Health Service, if they have neither a dispensary of their own nor convenient arrangements with another hospital, are now at liberty to give to out-patients prescriptions to be dispensed by any chemist doing N.H.S. work. Special prescription forms, which are now being prepared, must be used.

Lister Institute

Dr. W. d'Auvergne Maycock has been appointed superintendent of laboratories at the Elstree branch of the institute. He will continue to act as adviser on blood-transfusion to the Ministry of Health and the War Office.

Dr. Maycock, who is 38 years of age, went to McGill University from this country with a Lord Milner memorial exhibition and graduated there in medicine in 1935, taking his English Conjoint qualification in the same year. He was awarded the Holmes gold medal and held the Francis J. Williams fellowship in medicine and clinical medicine and a demonstratorship in the pathology department at McGill before returning to England to work with a Leverhulme research scholarship at the Royal College of Surgeons. The subject of his investigations was shock, and on the outbreak of war he was sent to France as second-in-command of the Army Blood Transfusion Service unit at Dieppe. After the B.E.F. returned to England he was appointed second-in-command of the Army Blood Supply Depot at Bristol, and at the end of the war he was placed in charge of the depot, with the rank of colonel. He was a member of the team at Bristol which investigated the diagnosis and treatment of secondary shock, and he is also part-author of the British report on dextran appearing on another page of this issue. His other published work includes papers on intestinal strangulation and on vascular reactions of sympathectomised cats. For several years he has spent part of his time in experimental work at the Lister Institute.

South East Metropolitan Regional Tuberculosis Society

The general meeting of this society will be held at Preston Hall, Aylesford, Kent, on Saturday, Jan. 22, at 10.30 A.M.

King Edward's Hospital Fund for London

The Fund has received a further instalment of £150,000 from the Nuffield Trust for the Special Areas. In founding this trust Lord Nuffield provided that any sums that might be available by way of repayment of loans or otherwise should pass to King Edward's Hospital Fund. A total sum of £1,150,000 has now been received.

The Pharmaceutical Society has appointed their deputy secretary, Mr. F. W. Adams, to be secretary with Mr. H. N. Linstead, M.P., to enable the latter to carry on with his public work. Mr. Adams will also be registrar in succession to Mr. Linstead.

Births, Marriages, and Deaths

BIRTHS

ANDERSON.—On Jan. 12, in London, the wife of Dr. I. M. Anderson—a son.

DICKINSON.—On Jan. 12, in London, the wife of Mr. J. R. Dickinson, F.R.C.S.—a daughter.

KYNASTON.—On Jan. 11, at Ipswich, the wife of Dr. Roger Kynaston—a daughter.

MEARES.—On Jan. 8, in London, the wife of Dr. D. E. Meares—a daughter.

MORE NISBETT.—On Jan. 8, at Woking, the wife of Surgeon Commander J. G. More Nisbett, R.N.—a daughter.

PARSONS-SMITH.—On Jan. 13, in London, the wife of Dr. Gerald Parsons-Smith, O.B.E.—a son.

PRICHARD.—On Jan. 17, in London, the wife of Dr. J. S. Prichard, M.C.—a son.

WILLIAMSON.—On Jan. 4, at Newcastle, the wife of Dr. Martin Williamson, M.C.—a son.

DEATHS

CHAPMAN.—On Jan. 14, Edward Seymour Chapman, M.D. Glasg., F.R.C.S.E.

HUTCHINSON.—On Jan. 11, at Bournemouth, Leslie Thomason Rose Hutchinson, M.A., M.D. Camb., D.P.H., D.T.M. & H., lieut.-colonel, I.M.S. retd.

PATON.—On Jan. 11, John Hunter Park Paton, M.D. Edin.

SWAN.—On Jan. 15, at Eastbourne, William Travers Swan, C.B., major-general, A.M.S. retd, aged 87.

Diary of the Week

JAN. 23 TO 29

Monday, 24th

UNIVERSITY COLLEGE, Gower Street, W.C.1
4.45 P.M. (Physiology theatre.) Mr. P. Johnson, PH.D.: The Ultracentrifuge and Electrophoresis Apparatus in Protein Research. (First of four lectures.)

Tuesday, 25th

UNIVERSITY OF LONDON
5.30 P.M. (17, Bloomsbury Square, W.C.1.) Prof. F. A. Paneth, F.R.S.: Use of Radioactive Tracers in Biological Research. (First of two lectures.)

UNIVERSITY COLLEGE
5.15 P.M. Dr. E. Ashworth Underwood: Respiration. (Second of four lectures.)

INSTITUTE OF DERMATOLOGY, 5, Lisle Street, W.C.2
5 P.M. Dr. I. Muende: Histopathology of the Skin.

EUGENICS SOCIETY
5.30 P.M. (Burlington House, Piccadilly, W.1.) Prof. L. S. Penrose: Work of the Galton Laboratory.

Wednesday, 26th

INSTITUTE OF PSYCHIATRY, Maudsley Hospital, S.E.5
2.45 P.M. Prof. W. E. Le Gros Clark, F.R.S.: The Thalamus.

BRITISH ASSOCIATION OF PHYSICAL MEDICINE
5.30 P.M. (St. Thomas's Hospital, S.E.1.) Dr. J. H. Cyriax: How to Examine a Joint.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS, 242, St. Vincent Street, Glasgow, C.2
5 P.M. Prof. J. R. Learmonth: Surgery of the Spleen.

Thursday, 27th

ST. GEORGE'S HOSPITAL MEDICAL SCHOOL, S.W.1
4.30 P.M. Neurology demonstration.

MEDICO-LEGAL SOCIETY
8.15 P.M. (26, Portland Place, W.1.) Dr. Robert Forbes: The Coroner, the Doctor, and the Public.

Friday, 28th

UNIVERSITY COLLEGE
5.15 P.M. Mr. F. Bergel, PH.D.: Pharmacological Chemistry. (First of three lectures.)

MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES
8 P.M. (11, Chandos Street, W.1.) Dr. I. N. Orpwood Price: Modern Interpretations of Serum Tests.

MAIDA VALE HOSPITAL MEDICAL SCHOOL, W.9.
5 P.M. Dr. P. H. Tooley: Psychiatric demonstration.

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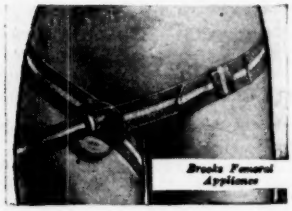

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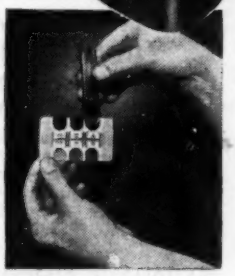

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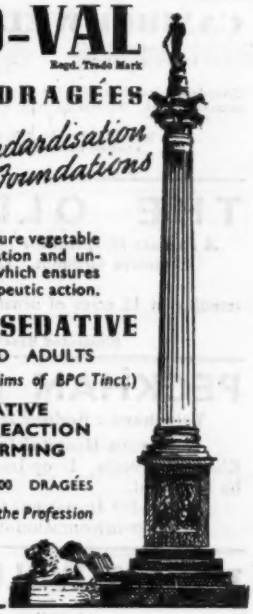

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This Registered Hospital is situated in 130 acres of park and pleasure grounds. Voluntary patients, who are suffering from incipient mental disorders or who wish to prevent recurrent attacks of mental trouble; temporary patients, and certified patients of both sexes are received for treatment. Careful clinical, biochemical, bacteriological, and pathological examinations. Private rooms with special nurses, male or female, in the Hospital or in one of the numerous villas in the grounds of the various branches can be provided.

WANTAGE HOUSE

This is a Reception Hospital in detached grounds with a separate entrance, to which patients can be admitted. It is equipped with all the apparatus for the complete investigation and treatment of Mental and Nervous Disorders by the most modern methods; insulin treatment is available for suitable cases. It contains special departments for hydrotherapy by various methods, including Turkish and Russian baths, the prolonged immersion bath, Vichy Douche, Scotch Douche, Electrical baths, Plombières treatment, etc. There is an Operating Theatre, a Dental Surgery, an X-ray Room, an Ultraviolet Apparatus, and a Department for Diathermy and High-frequency treatment. It also contains Laboratories for biochemical, bacteriological, and pathological research. Psychotherapeutic treatment is employed when indicated.

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Two miles from the Main Hospital there are several branch establishments and villas situated in a park and farm of 650 acres. Milk, meat, fruit, and vegetables are supplied to the Hospital from the farm, gardens, and orchards of Moulton Park. Occupational therapy is a feature of this branch, and patients are given every facility for occupying themselves in farming, gardening, and fruit growing.

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For terms and further particulars apply to the Medical Superintendent (TELEPHONE: 2356 and 2357 Northampton), who can be seen in London by appointment.

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For the reception and treatment of PRIVATE PATIENTS of both sexes of the UPPER AND MIDDLE CLASSES suffering from Mental and Nervous Disorders, Alcoholism and Drug Addiction, either voluntarily, temporarily, or under certificate. Patients are classified in separate buildings according to their mental condition. Situated in park and grounds of 400 acres. Self-supported by its own farm and gardens, in which patients are encouraged to occupy themselves. Every facility for indoor and outdoor recreation. For terms, prospectus, etc., apply MEDICAL SUPERINTENDENT. *Telephone:* Ashton-in-Makerfield 7311. *Telegraphic Address:* Wootton, Ashton-in-Makerfield.

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Consulting Physician: J. BARRIE MURRAY, M.A., M.D., M.R.C.P.
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A course of lectures on recent advances in ophthalmology and a series of pathological demonstrations will be given each evening at the Institute in Judd-street, W.C.1, commencing 1st February, 1949, at 5.30 P.M.

For further particulars and programme apply to the Academic Secretary at the Institute as soon as possible. Admission will be by ticket only.

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A COURSE OF CLINICAL DEMONSTRATIONS will be given on FRIDAYS at 5 P.M. from 21ST JANUARY to 29TH APRIL, 1949, inclusive. These demonstrations are open to postgraduate students and medical practitioners at a fee of 1 guinea for the course.

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The course for the Postgraduate Diploma in Bacteriology for the session 1949–50 will commence in OCTOBER, 1949. This is a full-time day course extending over 1 academic year.

The course may be taken by:

(*a*) Graduates in Medicine or Veterinary Science desiring to study Bacteriology as applied to Medicine and Hygiene;

(*b*) Graduates in Science with a First or Second Class Honours degree in Chemistry, or its equivalent. For such students, the course covers the fields of General Bacteriology, Chemical Microbiology, and Industrial Microbiology.

Applications for admission to the Diploma Course must be received not later than 1st March, 1949. Further information and application forms can be obtained from the Assistant Dean, London School of Hygiene and Tropical Medicine, Keppel-street, W.C.1.

BEIT MEMORIAL FELLOWSHIPS FOR MEDICAL RESEARCH

Notice is hereby given that an ELECTION OF JUNIOR FELLOWS to begin work on 1st October will take place in JULY, 1949.

Junior Fellowships are normally of the annual value of £600 for 3 years; but candidates younger than those usually elected or whose promise for medical research must be judged mainly on work outside that field, may be awarded a lower rate of £500 for the first 2 years. Candidates are asked to state whether they would be unable to accept this lower initial rate.

Candidates must have taken a degree in a faculty of a University in the British Empire or a medical diploma registrable in the United Kingdom.

Elections to Junior Fellowships are rarely made above the age of 35 years.

The Trustees are desirous of furthering research in Mental Diseases and, in the general allotment of Fellowships, will give some preference to a candidate proposing research on approved lines in that subject.

Applications from candidates must be received by 14th May. It is necessary for candidates to submit evidence that they can be given accommodation in the departments where they propose to work, which must be either in Great Britain or Ireland. Forms of application and all information may be obtained by letter only, addressed to Dr. A. N. DRURY, C.B.E., F.R.S., Secretary, Beit Memorial Fellowships for Medical Research, Lister Institute, Chelsea Bridge-road, London, S.W.1.

For Overseas candidates, forms of application may be obtained from: The Secretary, South African Medical Council, P.O. Box 205, Pretoria, South Africa; The Secretary, Universities Commission, Box 4061, G.P.O., Sydney, Australia; The Department of Health, Wellington, New Zealand; The Canadian Medical Association, 184, College-street, Toronto, Canada.

L.M.S.S.A.

FINAL EXAMINATION: SURGERY, 14th February, 14th March, 11th April, 1949. MEDICINE, PATHOLOGY, 21st February, 21st March, 19th April, 1949. MIDWIFERY, 22nd February, 22nd March, 20th April, 1949. MASTERY OF MIDWIFERY, May and November. DIPLOMA IN INDUSTRIAL HEALTH, July and December.

For regulations apply REGISTRAR, Apothecaries' Hall, Black Friars-lane, London, E.C.4.

UNIVERSITY OF OXFORD

MARGARET OGILVIE'S READERSHIP IN OPHTHALMOLOGY

The Electors invite applications, which should reach the Registrar of the University not later than SATURDAY, 29TH JANUARY, 1949, for the above Readership. Candidates should send 8 copies of their applications and should name 3 referees. Testimonials should not be sent. The stipend of the Readership will be between £900 and £1100 a year, according to qualifications and experience (plus children's allowances and with inclusion in the University superannuation scheme), together with an allowance of £500 if clinical responsibilities are attached to the post, on the understanding that no private practice would be allowed. The Reader, with the consent of the Board of Governors of the United Oxford Hospitals, will hold the appointment of Scientific Adviser to the Hospital. If the Board of Governors and the Board of the Faculty of Medicine think fit, he may hold the post of Ophthalmic Surgeon in the United Oxford Hospitals.

Full details concerning the Readership may be obtained from the Registrar, Old Clarendon Building, Oxford.

12th January, 1949.

FINCHLEY MEMORIAL HOSPITAL, Granville-road, Finchley, N.12. Required, RESIDENT HOUSE SURGEON (B2). Successful applicant to commence duty 1st March, 1949. Salary £250 p.a., plus emoluments of £100 p.a.

Apply to House Governor, by 5th February, 1949.

BETHNAL GREEN AND POPLAR METROPOLITAN BOROUGHS. Applications invited from registered medical practitioners for joint appointment of MEDICAL OFFICER OF HEALTH for the adjacent Metropolitan Boroughs of Bethnal Green and Poplar. In accordance with a scheme of coöperation between the London County Council and the Metropolitan Borough Councils, appointee will also be required to act as Administrative Medical Officer for the purpose of assisting in the administration of the local personal health services for which the London County Council is responsible under Part III of the National Health Service Act, 1946. Appointment whole time and the commencing salary will be £1435 (consolidated) p.a., rising by annual increments of £50 to maximum of £1585 p.a. Successful candidate required to pass medical examination and to contribute to the superannuation fund operated by one of the above-named borough councils.

Further particulars and forms of application may be obtained from the Town Clerk of Poplar, Poplar Town Hall, Bow-road, E.3, to whom completed applications must be delivered by 9 A.M., 14th February, 1949. Candidates selected for interview will be required to furnish 3 original testimonials. Canvassing members or officers of the Borough Councils in any form will disqualify. F. J. ROLFE, Town Clerk of Bethnal Green.
S. A. HAMILTON, Town Clerk of Poplar.

Poplar Town Hall, Bow-road, E.3. 6th January, 1949.

CENTRAL MIDDLESEX HOSPITAL, Park Royal, N.W.10. Required, RESIDENT SURGICAL OFFICER to act as 1st Assistant for Aural Dept. Registered medical practitioners who have held posts as House Surgeons with experience in E.N.T. work. Post approved for D.L.O. examination. Salary £400 p.a., plus temporary bonus of £30 p.a., board, lodging, and laundry. Appointment for 1 year, subject to medical examination. Whole-time duties under supervision of Medical Director and Visiting E.N.T. Consultant.

Applications, stating age, qualifications, and experience, with copies of up to 3 recent testimonials to the Secretary, Central Middlesex Group Hospital Management Committee, Central Middlesex Hospital by 31st January, 1949.

CAMBERWELL HOSPITALS MANAGEMENT COMMITTEE. ST. GILES' HOSPITAL, Camberwell, S.E.5. Required, HOUSE SURGEON (A) (2 vacancies). Salary £200 a year, full residential emoluments. Appointment for 6 months in the first instance, renewable up to 2 years under certain conditions. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for service with H.M. Forces appointment limited to 6 months.

Applications, stating age, qualifications, and experience, should be made to the Secretary, Camberwell Hospitals Management Committee, Dulwich Hospital, S.E.22, by 7th February, 1949.

CAMBERWELL HOSPITALS MANAGEMENT COMMITTEE. ST. GILES' HOSPITAL, Camberwell, S.E.5. Required, ASSISTANT MEDICAL OFFICER Class II (B2), Casualty Officer. Salary £400 a year, full residential emoluments. Appointment for 1 year only in first instance, renewable for a second year under certain conditions. Suitably qualified R practitioners holding A posts may apply for appointment which will be limited to 6 months.

Applications, stating age, qualifications, and experience, and enclosing copies of recent testimonials, should be made to the Secretary, Camberwell Hospitals Management Committee, Dulwich Hospital, S.E.22, by 7th February, 1949.

CONNAUGHT HOSPITAL, Walthamstow, E.17. (118 Beds.) Required, HOUSE SURGEON (A), post vacant 1st February. Appointment limited to 6 months, and remuneration at rate of £180 p.a., plus full residential emoluments.

Applications, stating qualifications, age, experience, and containing information as to the applicant's position in relation to military service, with copies of 2 recent references, should be addressed to the Secretary, Hospital Management Committee Forest Group (No. 11), Langthorne-road, Leytonstone, E.11.

FULHAM AND KENSINGTON HOSPITAL MANAGEMENT COMMITTEE. Registered medical practitioners invited to apply for the following appointments:—

Western Hospital, Seagrave-road, Fulham, S.W.6

SENIOR MEDICAL REGISTRAR (B1). Experience in tuberculosis essential (part-time duties at Fulham Chest Clinic, 114, New King's-road, Fulham, S.W.6).

St. Mary Abbots Hospital, Marloes-road, Kensington, W.8

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Fulham Hospital, St. Dunstan's-road, Hammersmith, W.6

JUNIOR ANÆSTHETIC REGISTRAR (B2). Salary £400 a year, full residential emoluments. R practitioners holding A post may apply when appointment for 6 months.

HOUSE SURGEON (A). Salary £200 a year, full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for service with H.M. Forces appointment limited to 6 months.

All the above positions are subject to review on the implementation of the Spens report.

Applications, giving full particulars, should be made to the Secretary, L.55, Fulham and Kensington Hospital Management Committee, St. Mary Abbots Hospital, Marloes-road, Kensington, W.8, not later than 7th February, 1949.

GREENWICH AND DEPTFORD HOSPITAL MANAGEMENT COMMITTEE. Required, CASUALTY OFFICER (B1) at the Miller General Hospital. Appointment, which is non-resident, will be for 6 months. Salary £350 p.a., plus £100 non-resident allowance.

Applications, with copies of 1–3 recent testimonials, should reach the Secretary, Greenwich and Deptford Hospital Management Committee, St. Alfege's Hospital, Vanbrugh-hill, Greenwich, S.E.10, by 4th February, 1949.

GUY'S HOSPITAL, S.E.1. Required, Junior Resident Clinical PATHOLOGISTS (B2), 2 vacancies, one for 12th March and the other on 1st April, 1949. Salary £350 p.a., board residence.

Applications, with copies of testimonials, should be lodged with the Superintendent, Guy's Hospital, London Bridge, S.E.1, by 28th February, 1949.

HOSPITALS FOR DISEASES OF THE CHEST. Vacancies occur on 1st March for 2 HOUSE PHYSICIANS at the London Chest Hospital, E.2. Appointments are for 6 months, of which 3 months will be at the Country Branch. Salary £200 p.a., board, residence, and laundry.

Applications, with copies of 3 testimonials, should be sent at once to the Secretary, London Chest Hospital, E.2.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.1. There will be a vacancy on 7th March, 1949, for REGISTRAR (non-resident) to the Dept. of Physical Medicine. Salary £650 p.a., subject to adjustment later in accordance with the recommendations of the Spens Committee. Appointment, which is renewable, is tenable in the first instance for 12 months.

Full particulars, with form of application, which must be returned by 7th February, 1949, are obtainable from—
H. F. RUTHERFORD, House Governor and Secretary.

AMENDED ADVERTISEMENT

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.1. There will be a vacancy on 7th March, 1949, for JUNIOR RESIDENT ANÆSTHETIC REGISTRAR (B1). Salary £300 p.a., subject to adjustment later in accordance with the recommendations of the Spens Committee. Appointment will be made, in the first instance, for 6 months, but is renewable. (This post previously advertised as non-resident.)

Full particulars, with form of application, which must be returned by 7th February, 1949, are obtainable from—
H. F. RUTHERFORD, House Governor and Secretary.

HAMPSTEAD GENERAL HOSPITAL, The Green, N.W.3. Required, RESIDENT CASUALTY SURGICAL OFFICER (B2), Male or Female, post vacant now; tenable for 6 months at the main Outpatient Dept., Camden Town, N.W.1. Salary £200 p.a., board, lodging, and laundry.

Applications to be made on the prescribed form, with copies of 3 recent testimonials, to be returned as soon as possible.
KENNETH A. F. MILES, House Governor.

INSTITUTE OF ORTHOPÆDICS AND THE ROYAL NATIONAL ORTHOPÆDIC HOSPITAL, 234, Great Portland-street, London, W.1. Applications invited for permanent whole-time post of BIOCHEMIST to the Institute of Orthopædics and the Royal National Orthopædic Hospital. It is proposed that at least half of his or her time shall be devoted to research and teaching. Salary £1000–£1300 (with superannuation), according to experience.

Applications should be received by the Dean at the Hospital by 31st March, 1949. Testimonials are not required, but candidates should submit the names of 2 or 3 referees. Canvassing of members of the Committee of Management of the Institute, the Board of Governors of the Hospital, or the Advisory Appointments Committee, will lead to disqualification.

INSTITUTE OF ORTHOPÆDICS AND THE ROYAL NATIONAL ORTHOPÆDIC HOSPITAL, 234, Great Portland-street, London, W.1. Applications invited for permanent whole-time post of MORBID ANATOMIST to the Institute of Orthopædics and the Royal National Orthopædic Hospital. It is proposed that at least half of his or her time shall be devoted to research and teaching. Salary £1000–£1300 (with superannuation), according to experience.

Applications should be received by the Dean at the Hospital by 31st March, 1949. Testimonials are not required, but candidates should submit the names of 2 or 3 referees. Canvassing of members of the Committee of Management of the Institute, the Board of Governors of the Hospital, or the Advisory Appointments Committee, will lead to disqualification.

KING'S COLLEGE HOSPITAL, Denmark-hill, S.E.5. Required, LECTURER in the Dept. of Chemical Pathology of the Hospital and Medical School. Candidates should have graduated in chemistry and have special experience in biochemistry. Salary will depend on the experience and qualification of successful candidate but will not be less than £600 p.a. Further information may be obtained, in the first place, from the Professor of Chemical Pathology.

Applications, with the names of 3 referees, should be lodged with undersigned on or before 12th February, 1949.
S. W. BARNES, House Governor and Secretary.

KING'S COLLEGE HOSPITAL, Denmark-hill, S.E.5. The Board of Governors invite applications for post of ASSISTANT ANÆSTHETIST. Candidates must hold the D.A., and successful candidate will also be expected to devote a part of his time to the training of undergraduate students. Appointment part-time with attendance up to 6 sessions a week. Salary £200 p.a. per weekly session, subject to revision when the recommendations of the Spens Committee are adopted.

Applications (12 copies), giving the names of 3 referees, should be sent by 15th February, 1949, to S. W. BARNES, House Governor and Secretary. Canvassing of Members of the Board of Governors or Advisory Appointments Committee will lead to disqualification.

LEYTONSTONE GROUP NO. 10 HOSPITAL MANAGEMENT COMMITTEE. JUNIOR RESIDENT PATHOLOGIST, Male or Female, required at Whipps Cross Hospital, Leytonstone, E.11. Applicants must be registered medical practitioners but previous experience in a pathological laboratory not essential. Successful applicant will work under the direction of the Senior Pathologist, will devote part of his time to hæmatology, and the duties will include that of Blood Transfusion Officer. Salary £500–£25–£600 a year, plus emoluments valued at £130. Appointment for 6 months in the first instance.

Applications by letter, giving full details, to the Secretary, Leytonstone Group, Langthorne Hospital, Leytonstone, E.11, by 29th January, 1949.

KING'S COLLEGE OF HOUSEHOLD AND SOCIAL SCIENCE (UNIVERSITY OF LONDON), Campden Hill-road, London, W.8. Applications invited for appointment as LECTURER IN HYGIENE (part time). Medical qualification essential and public health diploma desirable.

Applications should be sent to the Secretary at the above address.

LONDON HOSPITAL, Whitechapel, E.1. There will be a vacancy, 1st April, 1949, for post of MEDICAL FIRST ASSISTANT AND REGISTRAR. Candidates must be Members of the Royal College of Physicians, London. Appointment for 1 year renewable annually for 2 further periods of 1 year at a salary of £650–£50–£750 p.a.

Applications (12 copies), giving the names and addresses of 3 referees should be sent to the House Governor (from whom further particulars may be obtained) by 28th February, 1949.

H. BRIERLEY, House Governor.

NORTH MIDDLESEX HOSPITAL, Edmonton, N.18. Senior HOUSE PHYSICIAN (B2), resident. 6 months' appointment from 24th February. Salary £250 p.a., plus temporary bonus of £30 p.a. Whole-time duties such as Hospital may require. R practitioners holding A posts eligible.

Applications, stating age, qualifications, nationality, experience, with copies of recent testimonials, to Medical Director of Hospital, by 27th January.

NORTHERN GROUP HOSPITAL MANAGEMENT COMMITTEE. HIGHLANDS HOSPITAL (formerly Northern Hospital), Winchmore Hill, London, N.21. Required, HOUSE SURGEON (A) for 6 months. Salary £150 p.a., plus cash bonus £30 p.a., full residential emoluments valued for superannuation purposes at £150 p.a. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, may apply.

Applications, with copies of 3 recent testimonials, should be sent to the Secretary, Northern Group Hospital Management Committee, Royal Northern Hospital, Holloway, London, N.7, from whom the necessary form of application can be obtained.

NORTHERN GROUP HOSPITAL MANAGEMENT COMMITTEE. ROYAL NORTHERN HOSPITAL, Holloway, London, N.7. Required, ORTHOPÆDIC HOUSE SURGEON AND CASUALTY OFFICER (B2), post vacant 23rd February, 1949, for 6 months. Salary £250 p.a., full residential emoluments valued for superannuation purposes at £150, plus any temporary bonus, at present £30 in cash. R practitioners holding A posts may apply.

Applications, stating age, qualifications with dates, and nationality, with copies of 3 recent testimonials, should be sent by 4th February, 1949, to GILBERT G. PANTER, Secretary.

NORTH-EAST METROPOLITAN REGIONAL HOSPITAL BOARD. Applications invited for following positions:—

SENIOR PHYSICIAN (full time) Runwell Mental Hospital, near Wickford, Essex. Salary £950 a year, plus emoluments of unfurnished house, fuel, light, and garden produce, valued for superannuation purposes at £159 19s. 4d. a year. Candidate appointed will be expected to take charge of a division of the Hospital and also to do outpatient clinic work and some post-graduate teaching. A Dept. of Neuropathology is being established and there are excellent facilities for research. Candidates must hold the D.P.M. and should possess a higher medical qualification. Appointment subject to National Health Service (Superannuation) Regulations, 1947/48.

VISITING PHYSICIAN (part time) East Ham Memorial Hospital, Shrewsbury-road, E.7. 3 half-days a week. Remuneration £600 a year.

VISITING E.N.T. SURGEON (part time) Hackney Hospital, Homerton High-street, E.9. 2 half-days a week. Remuneration £400 a year.

All salaries stated are subject to review on implementation of recommendations of Spens Committee; travelling expenses are payable in accordance with S.R.O. 1330 of 1947.

Applications, stating position required, name, date of birth, experience, present appointments (including number of sessions), and salary, with names and addresses of 3 referees, should reach C. E. NICOL, Secretary, North-East Metropolitan Regional Hospital Board, 11A, Portland-place, London, W.1, by 5th February, 1949. Canvassing disqualifies.

PRINCESS BEATRICE HOSPITAL, Earl's Court, S.W.5. (St. George's Hospital, S.W.1.) Required, OBSTETRIC HOUSE SURGEON (B2), Male or Female, post vacant 11th February, 1949. Obstetric experience essential. Appointment for 6 months. Salary £200 p.a., full residential emoluments. R practitioners holding A posts may apply.

Applications, stating age, qualifications with dates, and nationality, with copies of 1–3 testimonials, should be sent to the House Governor by 29th January, 1949.

ROYAL CANCER HOSPITAL, Fulham-road, London, S.W.3. Required, JUNIOR ASSISTANT RADIOTHERAPIST, to commence duty as soon as possible. Salary £700 p.a. Appointment for 12 months and subject to renewal. Applicants must be registered medical practitioners who hold a Diploma in Medical Radiology.

Applications on form supplied by the Secretary, with copies only of 3 recent testimonials, should reach the House Governor and Secretary by the first post, 7th February, 1949.

QUEEN ELIZABETH HOSPITAL FOR CHILDREN MANAGEMENT COMMITTEE, Hackney-road, E.2, Shadwell, E.1, Banstead Wood, Surrey. Applications invited from registered medical practitioners for appointment of 3 ROTATING INTERNSHIPS vacant 1st March, 1949. These appointments are to be held for 12½ months, the first 6 months as House Physician followed by 2 weeks' leave and then by terms of 3 months as House Surgeon and 3 months as Casualty Officer rotating between the Branches of the Hospital. Salary £175 p.a., full residential emoluments.

Application forms may be obtained from undersigned and should be returned with copies of 1–3 testimonials on or before 26th January, 1949.

Hackney-road, E.2. CHARLES H. BESSELL, Secretary.

QUEEN ELIZABETH HOSPITAL FOR CHILDREN, Hackney-road, E.2. Required, RESIDENT MEDICAL OFFICER (B1), Male or Female, post vacant 1st March, 1949. Candidates must have had experience in the treatment of sick children. Salary £350 p.a., full residential emoluments. Appointment for 6 months in the first instance and renewable for subsequent periods not exceeding 2 years.

Application forms may be obtained from undersigned and should be returned with 1–3 testimonials by 1st February, 1949.

CHARLES H. BESSELL, Secretary.

ROYAL EYE HOSPITAL. King's College Hospital Group. Required, JUNIOR HOUSE SURGEON (B2), Male or Female, post vacant 1st March, 1949. Salary £200 p.a., emoluments.

Applications should be sent to the Secretary, The Royal Eye Hospital, St. George's-circus, S.E.1, by 31st January.

ROYAL FREE HOSPITAL, Gray's Inn-road, W.C.1. Required, SECOND RESIDENT ANÆSTHETIC REGISTRAR (B1), Male or Female. Applicants must not be more than 10 years' qualified and must possess the D.A. qualification. Salary £500 p.a. Duties to commence 1st February, 1949, for 1 year in the first instance. Suitably qualified practitioners holding B2 appointment invited to apply. R practitioners eligible for H.M. Forces holding B1 appointment, not considered.

Applications, stating age, qualifications, with copies of 3 recent testimonials and a photograph, should be sent to the House Governor on or before 25th January, 1949.

ROYAL FREE HOSPITAL, Gray's Inn-road, W.C.1. Required, CLINICAL ASSISTANT in the Ophthalmic Dept. for 1 session weekly on Tuesday mornings. Salary £175 p.a.

Applications, stating age, qualifications, with copies of 3 recent testimonials, should be sent to the House Governor on or before 25th January, 1949.

SOUTH LONDON HOSPITAL FOR WOMEN AND CHILDREN, Clapham Common, S.W.4. Applications invited from registered Women medical practitioners for appointment of HOUSE SURGEON (A) from 1st February, 1949. Appointment for 6 months. Salary £150 p.a., full residential emoluments.

Applications, stating age, nationality, and qualifications, with dates, and accompanied by copies of 3 recent testimonials, should reach the Administrative Assistant at the Hospital as soon as possible.

SOUTH-EAST METROPOLITAN REGIONAL HOSPITAL BOARD invite applications for permanent appointment of Whole-time PATHOLOGIST for duty in the hospitals of the Woolwich Hospital Management Committee Area. Provisional salary £1250 p.a., subject to adjustment in accordance with any national agreement reached in the light of the Spens report. Appointment subject to provisions of National Health Service (Superannuation) Regulations, 1947, and is terminable by 3 months' notice on either side.

Applications, stating age, sex, qualifications, experience, and present appointment, with the names and addresses of 3 referees, should be addressed to the Secretary, Advisory Appointments Committee, South-East Metropolitan Regional Hospital Board, 11, Portland-place, London, W.1, by 12th February, 1949. Canvassing of members of the Board or the Advisory Appointments Committee will lead to disqualification. A visit to the laboratory can be arranged with the Secretary, Woolwich Hospital Management Committee, Memorial Hospital, Shooters Hill, London, S.E.18.

ST. BARTHOLOMEW'S HOSPITAL, E.C.1. A vacancy will occur 1st April, 1949, for RESIDENT DENTAL HOUSE SURGEON holding a registrable dental qualification with, if possible, a medical qualification. Appointment for 6 months during which successful candidate will be able to gain experience in all kinds of dental and oral surgery. Appointment recognised by the Royal College of Surgeons for purposes of the Fellowship in Dental Surgery. Salary according to experience and not less than £200 p.a.

Candidates should lodge applications and testimonials with undersigned by 9th February, 1949.

C. C. CARUS-WILSON, Clerk to the Governors.

ST. HELIER GROUP OF HOSPITALS. Required, Senior Casualty OFFICER (B2) for service at the Nelson Hospital, S.W.20. Salary £250 a year, full residential emoluments. Appointment vacant mid-February, is for 6 months in the first instance.

Applications to be sent as soon as possible to the Secretary, the Nelson Hospital, Kingston-road, S.W.20.

ST. MARY'S HOSPITAL, London, W.2. Required, E.N.T. REGISTRAR (B1). Candidates must be Fellows of the Royal College of Surgeons of England or Graduates in Surgery of a British University. R practitioners eligible for H.M. Forces holding B1 post, not considered. Appointment for a first period of 12 months, at a salary of £400 p.a., but this salary will be reviewed in the light of the recommendations of the report of the Spens Committee.

Applications, stating nationality, date of birth, permanent address, qualifications, and experience, with the names and addresses of 3 referees, should reach undersigned by 28th January, 1949. W. PARKES, House Governor.

ST. MARY'S HOSPITAL, London, W.2, including Princess LOUISE KENSINGTON HOSPITAL FOR CHILDREN. Applications invited for post of JOINT PÆDIATRIC REGISTRAR (B1) to St. Mary's Hospital and Princess Louise Kensington Hospital for Children. Previous experience in Paediatrics is necessary. Preference given to candidates holding the M.R.C.P. and/or D.C.H. Appointment for a first period of 12 months, as from 1st April, 1949, at a salary of £400 p.a., but this salary will be reviewed in the light of the recommendations of the report of the Spens Committee. Practitioners eligible for H.M. Forces now holding B1 post, not considered.

Applications, stating, nationality, date of birth, permanent address, qualifications, and experience, with the names and addresses of 3 referees, should reach undersigned by 9th February.

W. PARKES, Secretary to the Board of Governors.

St. Mary's Hospital, W.2, 12th January, 1949.

HIS MAJESTY'S COLONIAL SERVICE

COLONIAL MEDICAL SERVICE

The Colonial Medical Service offers an interesting career and provides unique opportunities for applying medical science in all its branches in territories which are undergoing rapid development. There are immediate openings in many parts of the Colonial Empire, and applications are invited from both men and women doctors who are British subjects and who possess qualifications registrable in the United Kingdom.

Medical Officers are usually appointed in the first instance for general duties which require all-round ability and a balanced outlook on both preventive and curative medicine. Doctors who hold the Diploma of Public Health, or who have had previous experience in health work are also required for specific public health posts. In addition, ample scope exists for research and field investigation, and officers who possess special interests and aptitude are encouraged to obtain such higher qualifications as will enhance their value to the Service. Appointments to the super-scale posts in the administrative and specialist grades are invariably made by promotion of officers in the service who possess the necessary qualifications and experience.

Full details regarding conditions and terms of service may be obtained on application to the Director of Recruitment (Colonial Service), Colonial Office, Sanctuary Buildings, Great Smith Street, London, S.W.1.

ST. MARY'S HOSPITAL, London, W.2. Applications invited for post of SURGICAL REGISTRAR (B1). Candidates must be Fellows of the Royal College of Surgeons of England. Appointments (there are 2 vacancies) are for a first period of 12 months as from 9th April, 1949, at salaries of £400 p.a., but these salaries will be reviewed in the light of the recommendations of the report of the Spens Committee. Practitioners eligible for H.M. Forces holding B1 post, not considered.

Applications, stating nationality date of birth, permanent address, qualifications, and experience, with the names and addresses of 3 referees, should reach undersigned by 9th February.

12th January, 1949. W. PARKES, House Governor.

ST. THOMAS'S HOSPITAL, London, S.E.1. Applications invited for following appointments:—

X-ray Diagnostic Department

ASSISTANT RADIOLOGIST (3 vacancies), whole time. Radiological qualifications essential. Salary £1100 p.a. Annual appointment, renewable.

CHIEF ASSISTANT, whole time. Radiological qualifications essential. Salary £950 p.a. Annual appointment, renewable up to 4 years.

REGISTRAR, whole time. Junior trainee preparing to take radiological diploma. Salary scale £500–£50–£650 p.a. Annual appointment, renewable up to 4 years.

Department of Psychological Medicine

ASSISTANT PSYCHIATRIST (2 vacancies), part time, 4 sessions weekly. Applicants should have D.P.M. or higher qualification. Specialised knowledge of psychotherapy or physical treatments desirable. Salary £100 p.a. per weekly session. Annual appointment, renewable up to 5 years.

CHIEF ASSISTANT, whole time. D.P.M. or higher qualification desirable. Salary £950 p.a. Annual appointment, renewable up to 4 years. Applications will be welcomed from those in the mental health services if seconded by the Regional Board concerned.

REGISTRAR, whole time. This post is regarded as that of a junior trainee. Salary scale £500–£50–£650 p.a. Annual appointment, renewable up to 4 years.

All above salaries are provisional pending adoption of the Spens report.

Applications (for the Assistant and Chief Assistant posts 12 copies required), stating age, qualifications with dates, and details of experience, and the names and addresses of 3 referees to whom the Hospital may write, should be sent to the Clerk of the Governors by 5th February, 1949.

ST. THOMAS'S HOSPITAL, S.E.1. Applications invited for post of RESIDENT ASSISTANT PHYSICIAN. Appointment for 1 year in the first instance, at a salary of £650 p.a., full residential emoluments.

Applications, stating age, qualifications with dates, and details of experience, and the names and addresses of 3 referees to whom the Hospital may write, should be sent by 29th January, to the Clerk of the Governors.

THORPE COOMBE MATERNITY HOSPITAL, Walthamstow, E.17. HOSPITAL MANAGEMENT COMMITTEE, FOREST (NO. 11) GROUP. Applications invited from medical Women for position of JUNIOR RESIDENT MEDICAL OFFICER (B2), post vacant 1st March. Salary £250 p.a., plus bonus £24 1s. p.a., full residential emoluments. Appointee eligible for consideration to proceed to the senior appointment. The Hospital is recognised for the D.Obst.R.C.O.G. The annual number of confinements is over 1100.

Applications, stating age, nationality, qualifications, with copies of 3 recent testimonials should be addressed to the Secretary, Hospital Management Committee, Forest (No. 11) Group, Langthorne-road, Leytonstone, E.11.

TOTTENHAM GROUP HOSPITAL MANAGEMENT COMMITTEE. Applications invited for following posts at Prince of Wales's General Hospital, Tottenham, N.15:—

REGISTRAR to the Children's Dept. Applicants must be graduates in medicine of a recognised British university and Members of the Royal College of Physicians. Part-time appointment for a minimum of 4 sessions weekly. Salary £400 p.a. Successful applicant will be appointed in the first instance for a period of 9 months, thereafter appointment will be an annual one. Appointment to commence 1st March, 1949.

RESIDENT HOUSE PHYSICIAN (B1) to the Children's Dept. Applicants must have held house appointments. Appointment for 6 months, commencing 1st March, 1949. Salary £350 p.a., full residential emoluments.

R practitioners holding B1 post should not apply for above appointments unless ineligible for H.M. Forces.

Applications should be sent to the Secretary, Tottenham Group Hospital Management Committee, The Green, Tottenham, N.15, before 8th February, 1949.

UNIVERSITY COLLEGE HOSPITAL, Gower-street, W.C.1. Required, ASSISTANT ANÆSTHETICS REGISTRAR (B1) for 1 year in the first instance. Salary £600 p.a., non-resident, subject to any alterations published in the Ministry of Health scales of salaries which are awaited. Preference given to candidates holding the D.A. Suitably qualified R practitioners holding B2 appointments and ex-Service candidates may apply. R practitioners eligible for H.M. Forces holding B1 appointments, not considered.

Applications, with the names of 3 persons to whom reference may be made, should reach the Secretary by 5th February, 1949.

WOOLWICH GROUP HOSPITAL MANAGEMENT COMMITTEE. Required, RESIDENT SURGICAL OFFICER (B1) at St. Nicholas Hospital, Plumstead. Appointment for 1 year. Salary £450 p.a., full residential emoluments. Candidates must have held house appointments and have had experience in emergency surgery. R practitioners eligible for military service and holding B1 or A post, not considered.

Applications, with copies of 3 recent testimonials, should be sent immediately to J. I. COXON INCE, Secretary, W.G.H.M.C. Memorial Hospital, Shooters Hill, S.E.18.

WOOLWICH GROUP HOSPITAL MANAGEMENT COMMITTEE. Required, RESIDENT MEDICAL OFFICER (Male or Female) at the Brook General Hospital, Shooters Hill-road, S.E.18, for duties in the infectious diseases unit. Salary £400 p.a., full residential emoluments. Appointment for 1 year in the first instance. Experience in children's or infectious diseases is desirable.

Applications, stating age, qualifications, and experience, and enclosing copies of 2 recent testimonials, should be addressed to undersigned to reach him on or before 7th February, 1949.

J. I. COXON INCE, Secretary, W.G.H.M.C.
Memorial Hospital, Shooters Hill, S.E.18.

WOOLWICH GROUP HOSPITAL MANAGEMENT COMMITTEE. MEMORIAL HOSPITAL, Shooters Hill, London, S.E.18. Required, HOUSE SURGEON (B2), for 6 months. Salary £250 p.a., full residential emoluments. R practitioners, ineligible for service with H.M. Forces or under 25½ years not having held an A post, considered.

Applications, with copies of 3 recent testimonials, should be sent as soon as possible to—

J. I. COXON INCE, Secretary, W.G.H.M.C.
Memorial Hospital, Shooters Hill, S.E.18.

WANSTEAD HOSPITAL, Wanstead, E.11. Hospital Management COMMITTEE, FOREST (NO. 11) GROUP. OBSTETRIC HOUSE SURGEON (Male or Female) required, post vacant in February. Experience an advantage, but not essential. Remuneration £270 p.a., plus £29 15s. bonus.

Applications, stating qualifications, age, experience, and containing information as to the applicant's position in relation to Military Service, should be addressed to the Secretary, Hospital Management Committee, Forest (No. 11) Group, Langthorne-road, Leytonstone, E.11.

AYLESBURY AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE, ROYAL BUCKINGHAMSHIRE HOSPITAL, AYLESBURY. Required, RESIDENT MEDICAL OFFICER (B1), Male, post vacant 10th February, 1949. Duties include general administration of medical beds, Senior House Physician to Honorary Physicians and certain special investigations. Appointment for 6 months. Salary £450 p.a., full residential emoluments. R practitioners holding B1 appointment may only apply if ineligible for H.M. Forces.

Applications should be sent to the Secretary-Superintendent as soon as possible.

AYLESBURY AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE, ROYAL BUCKINGHAMSHIRE HOSPITAL, AYLESBURY. Required, CASUALTY OFFICER (B2), Male, post now vacant. Duties include House Surgeon to Accident and Orthopædic Dept. Salary £275 p.a., full residential emoluments. R practitioners holding A post may apply.

Applications, with copies of 3 recent testimonials, should be sent to the Secretary at the Hospital as soon as possible.

ABERDEEN GENERAL HOSPITALS BOARD OF MANAGEMENT. ABERDEEN ROYAL INFIRMARY. Required, Full-time CLINICAL ASSISTANT in the Dept. of Psychological Medicine. Salary £650 p.a., non-resident. Appointment for 6 months, renewable. Post suitable for a graduate wishing to complete training for the D.P.M.

Applications, indicating age, qualifications, and experience, with the names of 3 referees, should be lodged with undersigned by 1st February, 1949.

WILLIAM CAIE, Secretary and Treasurer.
62, Queen's-road, Aberdeen, 31st December, 1948.

BURY AND ROSSENDALE HOSPITAL MANAGEMENT COMMITTEE, BURY INFIRMARY, LANCS. (175 Beds—with Continuation Hospital.) RESIDENT CASUALTY AND OUTPATIENT OFFICER (B2), Male or Female, required. Salary £300 p.a., full residential emoluments. R practitioners holding A post may apply, when appointment will be limited to 6 months; otherwise for 1 year and subject to renewal at the end of that period. Post also includes a special department of eye and ear, nose, and throat.

Applications, giving full particulars, to—

H. WILKINSON, Secretary to the Committee.

BURY AND ROSSENDALE HOSPITAL MANAGEMENT COMMITTEE. BURY GENERAL HOSPITAL. (175 Beds.) Applications invited from registered medical practitioners, Male or Female, for appointments of HOUSE SURGEON (A) and HOUSE PHYSICIAN (A), posts vacant late February. Salary £200 p.a., residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for service with H.M. Forces appointment for 6 months; otherwise renewable.

Applications immediately to H. WILKINSON, Secretary.

BURY AND ROSSENDALE HOSPITAL MANAGEMENT COMMITTEE. BURY GENERAL HOSPITAL, BURY, LANCS. (175 Beds—including postoperative annexe.) HOUSE SURGEON (A), Male or Female, gynæcology and obstetrics, post vacant end of January. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for service with H.M. Forces appointment for 6 months; otherwise renewable. Salary £200 p.a., residential emoluments.

Applications immediately to—

H. WILKINSON, Secretary to the Committee.

BEDFORD COUNTY HOSPITAL. Required, Junior House SURGEON (A), post now vacant. Appointment limited to 6 months. Salary £175 p.a., full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered.

Applications should be addressed to the Administrator, Bedford County Hospital.

BRADFORD ROYAL INFIRMARY. (498 Beds.) House Physician (A) or (B2) required for 6 months from 1st February, 1949. Salary £200 p.a., plus full residential emoluments.

Applications, stating age, nationality, qualifications, experience (if any), with copies of testimonials, should be addressed as soon as possible to—

H. TRUSSON, Secretary, Bradford A Group H.M.C.

BRADFORD ROYAL INFIRMARY. (498 Beds.) House Surgeon (A) or (B2) required for 6 months from 1st February, 1949. Salary £200 p.a., plus full residential emoluments.

Applications, stating age, nationality, qualifications, experience (if any), with copies of testimonials, should be addressed as soon as possible to—

H. TRUSSON, Secretary, Bradford A Group H.M.C.

BRADFORD. ST. LUKE'S MATERNITY HOSPITAL. House SURGEON (B2), Obstetrics, required from 13th February, 1949. Salary £200 p.a., plus full residential emoluments.

Applications, stating age, nationality, qualifications, and experience, with copies of testimonials, should be forwarded to undersigned at the Royal Infirmary, Bradford.

H. TRUSSON, Secretary, Bradford A Group H.M.C.

BRADFORD CITY. Required, Assistant Medical Officer of Health. Duties mainly concerned with school medical and child welfare work. Appointee will also be required to undertake such other duties in the Health Dept. as may be decided by the M.O.H., from time to time. Candidates should hold the D.P.H. or the D.C.H. Salary £735 p.a., by annual increments of £25 to maximum of £935. Post subject to Local Government Superannuation Act, 1937, and successful candidate required to pass medical examination.

Form of application may be obtained from the M.O.H., Town Hall, Bradford, and should be returned to me by 7th February, 1949. W. H. LEATHEM, Town Clerk.

Town Hall, Bradford, January, 1949.

BURTON UPON TRENT COUNTY BOROUGH. Applications invited from duly qualified medical practitioners for appointment of an additional ASSISTANT MEDICAL OFFICER OF HEALTH (Male or Female) at a commencing salary of £735 p.a., rising by £25 p.a. to £935 p.a. in accordance with the revised Askwith scale of salaries. Appointment subject to provisions of appropriate superannuation Act, to the passing of a medical examination by the M.O.H., and to determination by 1 month's written notice on either side. Special consideration given to applicants holding the D.P.H., C.P.H., or D.C.H. The officer will be chiefly engaged in the work of the school health and maternity and child welfare service, and such other public health duties as may from time to time be prescribed by the Council or the M.O.H.

Form of application, with particulars of duties and conditions of appointment, will be supplied on application to the M.O.H., Town Hall, Burton upon Trent. Applications, stating age, experience, and qualifications, endorsed "Assistant Medical Officer of Health" must be delivered to undersigned, with copies of 1–3 recent testimonials, by 12th February, 1949. Canvassing, directly or indirectly, will be deemed a disqualification. H. BAILEY CHAPMAN, Town Clerk.

Town Hall, Burton upon Trent, 17th January, 1949.

BIRMINGHAM (DUDLEY ROAD) GROUP OF HOSPITALS. A SENIOR RESIDENT with considerable obstetric experience is required at Marston Green Maternity Hospital, for 6 months commencing 1st March, 1949. Salary £500 p.a., plus full residential emoluments valued £150. 40 Beds are now in use, but the number will be increased to 140 during the year. Post considered suitable for candidates studying for higher qualifications.

Applications, with copies of 3 testimonials, should be forwarded to the Secretary, The Birmingham (Dudley Road) Group of Hospitals, Dudley Road Hospital, Birmingham, 18, on or before 2nd February, 1949.

BIRMINGHAM (DUDLEY ROAD) GROUP OF HOSPITALS. OBSTETRIC HOUSE SURGEON required for 6 months, commencing 1st March, 1949, at Heathfield Road Maternity Hospital. Salary £250 p.a., plus full residential emoluments valued at £150 p.a. Appointment recognised for the D.Obst. R.C.O.G.

Applications, with copies of 3 testimonials, should be forwarded to the Secretary, The Birmingham (Dudley Road) Group of Hospitals, Dudley Road Hospital, Birmingham, 18, on or before 2nd February, 1949.

BOLTON AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE. THE BOLTON ROYAL INFIRMARY. (250 Beds—Resident Medical Staff of 8.) Required, HOUSE SURGEON (A), Male or Female, post vacant 1st March, 1949. Salary £200 p.a., full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for service with H.M. Forces appointment for 6 months.

Applications, stating age, nationality, and experience, with copies of testimonials, to be forwarded immediately to—

H. P. TRAVIS, Group Secretary.

BURNLEY AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE. VICTORIA HOSPITAL, BURNLEY. (183 Beds.) Required, HOUSE SURGEON (A) to the Special Depts. (Ophthalmic, Aural, and Fracture), post vacant 1st March, 1949. Salary £200 p.a., usual residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for service with H.M. Forces appointment for 6 months.

Applications, with copies of testimonials, should be sent forthwith to J. E. WHEATCROFT, Secretary,

Burnley and District Hospital Management Committee.

BURNLEY AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE. Required, RESIDENT MEDICAL OFFICER (A) at Burnley General Hospital (658 Beds). Salary £200 p.a., full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for service with H.M. Forces appointment for 6 months.

Applications should be sent as soon as possible to J. E. WHEATCROFT, Secretary, Victoria Hospital, Burnley.

BRIGHTON COUNTY BOROUGH. Applications invited from registered medical practitioners for whole-time appointment of DEPUTY MEDICAL OFFICER OF HEALTH. Applicants must possess the D.P.H., or its equivalent, be under 45 years of age, and have had administrative and practical experience in the public health service. Appointee required to act as Deputy Medical Referee for the Brighton Crematorium, to work under the direction of the M.O.H., and will not be permitted to engage in private work. Salary £950, by annual increments of £50 to £1150 (plus current bonus of £59 16s.). Appointment terminable on 3 months' notice, on either side, is subject to superannuation and to the passing of medical examination as to physical fitness.

Application forms, and further particulars, may be obtained from the M.O.H., Royal York Buildings, Brighton, and the completed applications, with copies of 3 recent testimonials, should be returned to undersigned by 5th February, 1949. Canvassing in any form will disqualify.

J. G. DREW, Town Clerk.

Town Hall, Brighton, 1, January, 1949.

BRIGHTON COUNTY BOROUGH EDUCATION COMMITTEE. Applications invited for whole-time appointment of SENIOR ASSISTANT SCHOOL MEDICAL OFFICER AND ASSISTANT TO THE MEDICAL OFFICER OF HEALTH, from registered practitioners (Men and Women) under 45 years of age who have had experience of the School Health Service, and are approved by the Minister of Education for mental deficiency work and the examination of handicapped pupils. Possession of D.P.H. regarded as an additional qualification. Successful candidate, under the general direction of the M.O.H., who is also the School Medical Officer, will be in charge of the Education Committee's clinics and will devote his time to the School Health Service. His services may be required by the M.O.H., for duties as Assistant Medical Officer (e.g., during school holidays or in an emergency). Salary, in accordance with the modifications of the Askwith revision, is £1040, by biennial increments of £50 to £1240 (plus current bonus). Appointment subject to provisions of Local Government Superannuation Act, 1937, as modified by National Health Service (Superannuation) Regulations, 1947, and the passing of a medical examination as to physical fitness.

Application forms, schedule of duties, and conditions of appointment, may be obtained from the Education Officer, 54, Old Steine, Brighton, 1, and should be returned by 19th February, 1949. Canvassing, directly or indirectly, will disqualify. J. G. DREW, Town Clerk.

Town Hall, Brighton, January, 1949.

BEXHILL HOSPITAL, Bexhill-on-Sea. Hastings Group Hospital MANAGEMENT COMMITTEE. Required, RESIDENT MEDICAL OFFICER (A), Male or Female, post vacant 1st February. Salary £250 p.a., full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for service with H.M. Forces appointment for 6 months.

Applications, stating age, qualifications with dates, nationality, and copies of testimonials to be addressed to the Secretary, Bexhill Hospital, Bexhill-on-Sea, Sussex.

CANTERBURY. KENT AND CANTERBURY HOSPITAL. (225 Beds.) CANTERBURY GROUP HOSPITAL MANAGEMENT COMMITTEE. Required, HOUSE SURGEON (B2), Male, post vacant 1st March, 1949, for the Urological and General Surgical Depts. at above Hospital. Post recognised for the F.R.C.S. examination, and duties will include some casualty work. Salary £350 p.a., full residential emoluments.

Applications, giving full particulars of qualifications and experience, with copies of 3 recent testimonials, should be forwarded as soon as possible to the Chief Administrative Officer at the Hospital.

BATH HOSPITAL MANAGEMENT COMMITTEE. Required, HOUSE OBSTETRICIAN (B2) at St. Martin's Hospital, Bath. Salary £250 p.a., board, residence, &c.

Applications should be sent to the Secretary, Bath Hospital Management Committee, Manor Hospital, Combe Park, Bath, before 31st January, 1949.

CARMARTHEN. ST. DAVID'S HOSPITAL. Assistant Medical OFFICERS (B1), Male or Female. Salary £555–£25–£655 p.a., full residential emoluments valued at £156 p.a., plus £50 p.a. for D.P.M. Previous experience in a mental hospital not necessary. Appointments subject to National Health Service (Superannuation) Regulations, 1947. R practitioners eligible for H.M. Forces holding B1 appointment, not considered.

Applications, with copies of 3 recent testimonials, to be sent as soon as possible to the Medical Superintendent.

CANWELL HALL BABIES' HOSPITAL. Birmingham (Selly OAK) HOSPITAL MANAGEMENT COMMITTEE, GROUP NO. 25. Required, HOUSE PHYSICIAN, post vacant 1st March, 1949. 6 months' appointment. For the first 3 months this is an A appointment with a salary of £200 p.a., plus full residential emoluments; thereafter, subject to satisfactory service, it becomes a B2 appointment with a salary of £250 p.a. The Hospital has 64 Cots for sick children up to the age of 5 years and there are 2 House Physicians. In addition to duties at Canwell Hall the House Physicians attend rounds at Selly Oak Hospital and a child welfare clinic once weekly.

Applications should be sent to the Pædiatrician, Canwell Hall Babies' Hospital, Sutton Coldfield, by 1st February, 1949.

CHELTENHAM GENERAL EYE AND CHILDREN'S HOSPITAL. CHELTENHAM HOSPITAL GROUP. Required, HOUSE SURGEON (B2) to the Eye, E.N.T. Dept., post vacant April next. Salary £300 p.a., full residential emoluments. Appointment for 6 months in the first instance.

Applications, with full details, and accompanied by 2 recent testimonials, should be sent to the Secretary, General Hospital Cheltenham, immediately.

CLACTON AND DISTRICT HOSPITAL, Clacton-on-Sea. COLCHESTER GROUP HOSPITAL MANAGEMENT COMMITTEE. Required, HOUSE SURGEON (A), Male. Appointment for 6 months. Salary £250 p.a., full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered.

Applications, with copies of 2 recent testimonials, should be submitted to the Secretary-Superintendent.

COVENTRY GROUP NO. 20 HOSPITAL MANAGEMENT COMMITTEE. Applications invited for under-mentioned posts:—

Coventry and Warwickshire Hospital

HOUSE SURGEON to E.N.T. Dept., vacant immediately. Appointment for 6 months. Salary £300 p.a., resident, or £350 according to experience since qualification. Hospital recognised for D.L.O.

HOUSE SURGEON (Male or Female) to Fracture and Orthopædic Dept., vacant immediately. Appointment for 6 months. Salary £300 p.a., or £350 p.a., according to experience since qualification, full residential emoluments.

GYNÆCOLOGICAL AND OBSTETRIC HOUSE SURGEON (B2), vacant early February. Appointment for 6 months. Salary £350 p.a., resident. Hospital recognised for M.R.C.O.G. and D.Obst.R.C.O.G.

Hospital of St. Cross, Rugby

CASUALTY OFFICER AND HOUSE SURGEON (B2) to Orthopædic Dept. Appointment for 6 months. Salary £350 p.a., full residential emoluments.

Applications, stating full details as to age, nationality, qualifications, and experience, whether married or single, with copies of 3 recent testimonials, should be addressed to the Secretary, Group 20 Hospital Management Committee, at Coventry and Warwickshire Hospital, Coventry.

CAMERON HOSPITAL, West Hartlepool. (92 Beds.) Applications invited for 2 following posts:—

HOUSE SURGEON (B2). Salary £250 p.a., board, residence, and laundry.

HOUSE SURGEON (A). Salary £200 p.a., board, residence, and laundry. To R practitioner appointment for 6 months.

Full particulars to the Secretary.

CHESHIRE (NORTH AND MID) HOSPITAL MANAGEMENT COMMITTEE, GROUP 17 (MANCHESTER REGION). Required, HOUSE SURGEON (B2), Male or Female, St. Annes Ear, Nose, and Throat Hospital (50 Beds). Salary £350 p.a., usual residential emoluments. 6 months' appointment in the first instance, to commence as soon as possible.

Applications should be sent to the Secretary, North and Mid-Cheshire Hospital Management Committee, Altrincham General Hospital, Altrincham. E. A. BIDEN, Secretary.

CHESTERFIELD HOSPITAL MANAGEMENT COMMITTEE. Required, CASUALTY OFFICER (A) for Chesterfield and North Derbyshire Royal Hospital. Salary £225 p.a., full residential emoluments.

Applications, stating age, nationality, qualifications, and experience, with 3 testimonials, to be forwarded as soon as possible to M. H. BOONE, Secretary, Chesterfield Hospital Management Committee, Royal Hospital, Chesterfield.

COSSHAM/FRENCHAY HOSPITAL MANAGEMENT COM-MITTEE, BRISTOL. Applications invited from registered medical practitioners for following appointments at Cossham Memorial Hospital (104 Beds):—

HOUSE PHYSICIAN (B2), vacant from 1st March, 1949. Salary £200 p.a., full residential emoluments. R practitioners holding A posts may apply.

HOUSE SURGEON AND CASUALTY OFFICER (A), vacant from 1st March, 1949. Salary £200 p.a., full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered.

Appointments for 6 months.

Applications, stating age, qualifications, nationality, and experience, with testimonials or the names of 3 referees, should be sent forthwith to the Secretary, Cossham Hospital, Kingswood, Bristol.

CROYDON GROUP HOSPITAL MANAGEMENT COMMITTEE MAYDAY HOSPITAL. (654 Beds.) Required, CASUALTY AND OUTPATIENTS MEDICAL OFFICER (B2). Appointment for 6 months. Salary £502 10s. p.a., plus emoluments valued at £170 p.a.

Applications, giving particulars of qualifications and experience, with 3 recent testimonials, should be received by undersigned by 1st February, 1949.

G. A. PAINES, Secretary, Management Committee.
General Hospital, London-road, Croydon.

DUDLEY, STOURBRIDGE AND DISTRICT HOSPITAL GROUP BIRMINGHAM REGION. Required, HOUSE SURGEON (B2) at The Corbett Hospital, Stourbridge (106 Beds), post vacant 31st January, 1949. Salary £200 p.a., plus full residential emoluments. Appointment for 6 months in the first instance. R practitioners holding A post may apply.

Applications, stating age, nationality, qualifications with dates, experience, and details of previous appointments, with copies of 3 recent testimonials, to H. RAYMOND HURST, Secretary to the Management Committee, The Guest Hospital, Dudley.

DUDLEY, STOURBRIDGE AND DISTRICT HOSPITAL GROUP BIRMINGHAM REGION. Required, HOUSE PHYSICIAN (B2) at The Corbett Hospital, Stourbridge (106 Beds), post vacant 31st January, 1949. Salary £200 p.a., plus full residential emoluments. Appointment for 6 months in the first instance. R practitioners holding A post may apply.

Applications, stating age, nationality, qualifications with dates, experience and details of previous appointments, with copies of 3 recent testimonials to H. RAYMOND HURST, Secretary to the Management Committee, The Guest Hospital, Dudley.

DUDLEY, STOURBRIDGE AND DISTRICT HOSPITAL GROUP BIRMINGHAM REGION. Required, RESIDENT SURGICAL OFFICER (B1) at Wordsley Hospital, near Stourbridge. (440 Beds), post vacant 1st March, 1949. Applicants should have held house appointments and had surgical experience. Preference given to candidates holding the Fellowship of one of the Royal Colleges. Salary £500 p.a., plus full residential emoluments. Appointment for 6 months in the first instance. R practitioners eligible for H.M. Forces holding B1 post, not considered.

Applications, stating age, nationality, qualifications with dates, experience, and details of previous appointments, with copies of recent testimonials to H. RAYMOND HURST, Secretary to the Management Committee, The Guest Hospital, Dudley.

DUDLEY, STOURBRIDGE AND DISTRICT HOSPITAL GROUP BIRMINGHAM REGION. Required, JUNIOR MEDICAL OFFICER at Wordsley Hospital, near Stourbridge (440 Beds), post vacant 31st January, 1949. Salary £280 p.a., plus full residential emoluments. Appointment for 6 months in the first instance. R practitioners holding A post may apply.

Applications, stating age, nationality, qualifications with dates, experience, and details of previous appointments, with copies of 3 recent testimonials, to H. RAYMOND HURST, Secretary to the Management Committee, The Guest Hospital, Dudley.

DUDLEY, STOURBRIDGE AND DISTRICT HOSPITAL GROUP BIRMINGHAM REGION. Required, HOUSE SURGEON (B2) at The Guest Hospital, Dudley (154 Beds), post vacant 31st January, 1949. Salary £200 p.a., plus full residential emoluments. Appointment for 6 months in the first instance. R practitioners holding A post may apply.

Applications, stating age, nationality, qualifications with dates, experience, and details of previous appointments, with copies of 3 recent testimonials, to H. RAYMOND HURST, Secretary to the Management Committee, The Guest Hospital, Dudley.

DERBY AREA NO. 1 HOSPITAL MANAGEMENT COM-MITTEE. DERBYSHIRE ROYAL INFIRMARY, DERBY. Applications invited from registered medical practitioners for following appointments:—

HOUSE SURGEON (A), for general surgery, vacant 16th February, 1949.

HOUSE PHYSICIAN (B2), vacant 1st March, 1949.

6 months' appointments. Salary for each post £200 p.a., full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered.

Applications, with full details, to be sent as soon as possible to Superintendent and Secretary, Derbyshire Royal Infirmary, Derby.

DERBY AREA NO. 1 HOSPITAL MANAGEMENT COM-MITTEE. DERBYSHIRE ROYAL INFIRMARY, DERBY. ACCIDENT AND ORTHOPÆDIC SERVICES. Required, SURGICAL REGISTRAR (B1), post vacant 1st March, 1949. 12 months' appointment. Salary £350 p.a., full residential emoluments. R practitioners eligible for H.M. Forces holding B1 appointments not considered.

Applications, stating age, qualifications, and experience, with copies of 3 testimonials, to be sent as soon as possible to Superintendent and Secretary, Derbyshire Royal Infirmary, Derby.

DEWSBURY AND BATLEY HOSPITALS. Hospital Manage-MENT COMMITTEE NO. 11. Applications invited for appointments of:—

ASSISTANT RESIDENT MEDICAL OFFICER (B2) to the Batley and District General Hospital (117 Beds).

HOUSE SURGEON (A) to the Dewsbury and District General Infirmary (116 Beds).

HOUSE SURGEON (A) to the Staincliffe General Hospital, Dewsbury (314 Beds).

R practitioners holding A post may apply for B2 appointment. To R practitioner appointment limited to 6 months; otherwise for 1 year and subject to renewal at the end of that period. Salary payable between £250 and £350, according to experience, full residential emoluments. A appointments for 6 months and salary £200 p.a., full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered.

Applications, stating full details of age, qualifications, and experience, with copies of 2 testimonials or names of 2 referees, to undersigned as soon as possible.

G. W. BATCHELOR, Secretary to the Committee.
Dewsbury and District General Infirmary, Dewsbury.

DARLINGTON DISTRICT HOSPITAL MANAGEMENT COMMITTEE. DARLINGTON MEMORIAL HOSPITAL. (210 Beds—Complement: 6 House Officers.) Required, CASUALTY OFFICER (A). Appointment vacant 1st February, 1949. Salary £250 p.a. plus £30 bonus, full residential emoluments.

Apply, giving age, experience, and references, to—
G. W. BECKWITH, Secretary.
Darlington District Hospital Management Committee,
Darlington Memorial Hospital.

DARLINGTON MEMORIAL HOSPITAL. (210 Beds.) Darlington DISTRICT HOSPITAL MANAGEMENT COMMITTEE. Applications invited from practitioners with, or in course of study for, a higher qualification, for appointment of ORTHOPÆDIC REGISTRAR (non-resident). Salary £550, rising by £50 p.a. to £700, with allowance of £150 for non-residence.

Applications, with 3 testimonials, giving full particulars, should reach undersigned by 7th February.
G. W. BECKWITH, Secretary,
Darlington District Hospital Management Committee.

DONCASTER HOSPITAL MANAGEMENT COMMITTEE. Required, HOUSE PHYSICIAN (A) at Doncaster Royal Infirmary. Salary £225 p.a., full residential emoluments. Successful candidate required to take up duties on or about 1st February, 1949. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered.

Applications, stating age, education, qualifications, and experience, with copies of 3 recent testimonials, should be sent immediately addressed to the Secretary, Doncaster Hospital Management Committee, c/o Royal Infirmary, Doncaster.

DOVER. ROYAL VICTORIA HOSPITAL. Required, Resident House SURGEON (B1). Applicants should have had previous hospital experience. Salary £450 a year, full residential emoluments.

Applications should state age, qualifications, experience, and the names and addresses of 2 responsible persons as reference to professional ability, and should be addressed to the Medical Superintendent of the Hospital.

EXETER AND MID-DEVON HOSPITALS MANAGEMENT COMMITTEE. ROYAL DEVON AND EXETER HOSPITAL, EXETER. (300 Beds—7 Resident Medical Staff employed.) Required, HOUSE SURGEON (A), Male or Female, for E.N.T. Dept., and to act as Casualty Officer during mornings, post vacant now. Salary £180 p.a. (£200 p.a. with 6 months' experience) and full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for service with H.M. Forces appointment for 6 months.

Applications, with copies of 2 recent testimonials, immediately to Senior Administrative Officer.

EXETER AND MID-DEVON HOSPITALS MANAGEMENT COMMITTEE. PRINCESS ELIZABETH ORTHOPÆDIC HOSPITAL, EXETER. (150 Beds with annexe.) RESIDENT SURGICAL OFFICER (B1), Male, vacancy end of February. Appointment for 6 months. Salary £350 p.a., full residential emoluments. R practitioners eligible for H.M. Forces who hold B1 or A post, not considered.

Applications, with copies of 3 recent testimonials, should be sent to the Senior Administrative Officer, Princess Elizabeth Orthopædic Hospital, Exeter.

EXETER AND MID-DEVON HOSPITALS MANAGEMENT COMMITTEE. PRINCESS ELIZABETH ORTHOPÆDIC HOSPITAL, Exeter. (150 Beds with annexe.) Required, HOUSE SURGEON (B2), Male, post vacant 1st March, 1949. Appointment for 6 months. Salary £250 p.a., full residential emoluments.

Applications, with copies of 3 recent testimonials, should be sent to the Senior Administrative Officer, Princess Elizabeth Orthopædic Hospital, Exeter.

ESSEX COUNTY COUNCIL. Mid-Essex Health Area. Required, ASSISTANT COUNTY MEDICAL OFFICER OF HEALTH. Applicants should have experience of school medical inspections and maternity and child welfare work and preference given to candidates who possess the Diploma in Child Health and/or the Certificate or Diploma in Public Health. Remuneration £750 a year, rising, subject to satisfactory service, by annual increments of £25 to £950 a year, plus such bonus (if any) as may be determined from time to time by the Council. Successful candidate required to pass medical examination and to contribute to the Council's superannuation fund.

Application forms may be obtained from the Acting Area Medical Officer, Dr. J. MERVYN THOMAS, Area Office, Covalane, Chelmsford, Essex, and should be returned to undersigned, with copies of 1–3 recent testimonials, as soon as practicable. Full information should also be given as to the applicant's position in relation to military service. Canvassing, directly or indirectly, will disqualify.

JOHN E. LIGHTBURN, Clerk of the County Council.
County Hall, Chelmsford, 14th January, 1949.

GREAT YARMOUTH AND GORLESTON GENERAL HOSPITAL. There are immediate vacancies for 2 HOUSE SURGEONS (A) at the surgical section of the above Hospital. Appointment will carry the duty of Resident Anæsthetist and Resident Obstetric Officer in addition to general surgical duties. Appointments for 6 months to practitioners liable for service with H.M. Forces. Salary £250 p.a., full residential emoluments.

Applications, with 3 recent testimonials, should be sent to JOHN S. EGERTON, Secretary-Superintendent, Dene-side, Great Yarmouth, immediately.

GRAYLINGWELL HOSPITAL MANAGEMENT COMMITTTEE, CHICHESTER. SOUTH-WEST METROPOLITAN REGION. Required, HOUSE PHYSICIAN (B2), Male or Female, at above mental hospital, which provides all facilities for organised tuition and practice of modern psychiatry. Salary £350 p.a., full residential emoluments. Appointment will, in the first instance, be limited to 6 months and, unless held by a R practitioner, may be extended to 12 months.

Applications, giving full particulars, with copies of recent testimonials, to be sent to the Medical Superintendent as soon as possible.

ESSEX COUNTY HOSPITAL, Colchester. (203 Beds.) Required, HOUSE SURGEON (A), duties commence 1st March. Appointment for 6 months, salary £170 p.a., and residential emoluments.

Applications, and copies of 3 testimonials, should be forwarded to the Assistant Secretary.

EAST RIDING GROUP HOSPITAL MANAGEMENT COMMITTEE. Required, RESIDENT ORTHOPÆDIC HOUSE SURGEON (A) or (B2), according to experience, at the Westwood Hospital, Beverley. Salary: A appointment £200 p.a., B2 appointment £250 p.a. Immediate vacancy.

Applications to be forwarded as soon as possible to the Secretary to the Committee, East Riding Group Hospital Management Committee, Westwood Hospital, Beverley, E. Yorks.

GODALMING, MILFORD, AND LIPHOOK HOSPITAL GROUP. RESIDENT ASSISTANT MEDICAL OFFICER (B1) required at King George's Sanatorium for Sailors, Liphook (80 Beds). Salary at a point on scale £350–£50–£450, according to qualifications and experience. Appointment for 6 months in the first instance, renewable at 6-monthly intervals.

Applications, giving full details, with copies of 3 testimonials, to be sent to the Physician-Superintendent, King George's Sanatorium for Sailors, Liphook, Hants, as soon as possible.

GRIMSBY COUNTY BOROUGH. Required, Assistant Medical OFFICER OF HEALTH AND ASSISTANT SCHOOL MEDICAL OFFICER (Woman). Candidates must have held a resident obstetric post for at least 6 months and either held a resident post for a period of 6 months or been a clinical assistant for a period of not less than 12 months in a children's hospital. Possession of a D.P.H. or D.C.H. and/or experience of general practice deemed to be additional qualifications. The work will be mainly in connexion with the maternity and child welfare scheme, but candidates will be expected to assist in the work of the school medical service and such other duties as the Medical Officer of Health may from time to time delegate. Opportunity will be given for extra experience in obstetrics at the Maternity Hospital formerly run by the local authority. Salary £735–£25–£935 p.a., and the commencing salary will have regard to the previous experience of appointee. A car allowance in accordance with the agreed national scale for local authorities will be paid. Selected candidates required to pass medical examination and these appointments subject to Local Government Superannuation Act, or to National Health Service (Superannuation) Regulations, 1947.

Applications, on forms to be obtained from the M.O.H., 1, Bargate, Grimsby, must be returned to me by 12th February, 1949. L. W. HEELER, Town Clerk.

Municipal Offices, Grimsby, 6th January, 1949.

GLOUCESTER COUNTY. The Gloucestershire County Council invite applications from duly qualified medical practitioners registered in the Medical Register as holders of Diplomas in Sanitary Science, Public Health, or State Medicine, for appointment of COUNTY MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER. The holder of the office will be required to perform such duties as may be prescribed by statute or otherwise, and such other duties as may be assigned to him by or on behalf of the County Council from time to time. He will be required to give whole-time service to the County Council and will not be permitted to engage in private practice. Salary scale (with which is consolidated the cost-of-living bonus of £33 16s. formerly payable) will be £1583 16s.–£50–£1833 16s. p.a. Appointment subject to provisions of Local Government Superannuation Acts, and successful candidate required to pass medical examination to the Council's satisfaction. The office will be held by appointee during the pleasure of the Council (except that any termination by the Council of that office will be subject to the consent of the Minister of Health) and may be determined by him by 3 months' notice in writing.

Applications, stating age and qualifications, with full particulars of experience, and giving the names of 3 persons to whom the Council may refer, should be sent to undersigned in envelopes endorsed "Appointment of County Medical Officer of Health," so as to reach him by 5th February, 1949. Canvassing in any form will be a disqualification.

GUY H. DAVIS, Clerk of the County Council.
Shire Hall, Gloucester.

GLOUCESTER, STROUD AND THE FOREST HOSPITAL MANAGEMENT COMMITTEE. GLOUCESTERSHIRE ROYAL INFIRMARY. Required, RESIDENT HOUSE PHYSICIAN (A), Male or Female, post vacant 1st February, 1949. Appointment for 6 months in the first instance. Salary £200 p.a., full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered.

Applications, stating age, and nationality, with copies of testimonials, should be sent as soon as possible to—
C. J. ADAMS, House Governor and Secretary.
Royal Infirmary, Gloucester.

GLASGOW ROYAL INFIRMARY AND ASSOCIATED HOSPITALS BOARD OF MANAGEMENT. GLASGOW ROYAL INFIRMARY. Required, MEDICAL REGISTRAR. Appointment for 2 years and a salary of £450 p.a. for the first year and £500 p.a. for the second year will be paid. Particulars as to duties, &c., may be obtained from the Superintendent, Glasgow Royal Infirmary, 84, Castle-street, Glasgow, C.4.

Applications, giving 3 names for reference, should be lodged with A. A. MACIVER, C.A., F.H.A., Secretary and Treasurer.
135, Buchanan-street, Glasgow, C.1.

HILLINGDON HOSPITAL, near Uxbridge, Middlesex. House PHYSICIAN (B2), Male, resident, required. Salary £250 p.a., board, lodging, and laundry, plus temporary cost-of-living bonus now £60 p.a., proportion only paid in cash. R practitioners holding A post are eligible. Whole-time duties under Medical Director. 6 months' appointment with possible extension to 12 months (except R practitioners). Post vacant late February.

Applications, stating age, qualifications, experience, with copies of 1–3 recent testimonials, to be made to Medical Director of Hospital by 2nd February, 1949.

HIGH WYCOMBE AND DISTRICT WAR MEMORIAL HOSPITAL. (101 Beds.) Required, HOUSE SURGEON (A), post now vacant. Salary £225 p.a., plus residential emoluments. To R practitioners appointment for 6 months. There are 2 other Residents.

Applications, with details, to E. BARBER, Secretary.

HENDON GROUP HOSPITAL MANAGEMENT COMMITTEE. Applications invited for post of CHIEF ASSISTANT, Dept. of Obstetrics and Gynæcology, at the Edgware General Hospital (formerly Redhill County Hospital). Candidates should have higher qualification in obstetrics and gynæcology and considerable experience in this specialty. Maternity unit of 130 beds and gynæcological unit of 36 beds. General scope of duties, arranged by Medical Director and Senior Obstetrician, may include teaching. Inclusive salary £750–£50–£950 p.a., plus temporary bonus (now £60 p.a.) may be subject to review when Spens report is implemented. Commencing salary determined according to the training and experience of successful candidate. Post non-resident. Appointment initially up to 3 years, may be extended but not beyond 5 years, save in exceptional circumstances. Appointment subject to National Health Service (Superannuation) Regulations, 1947/48, and to medical examination unless a transferred officer and 1 month's notice.

Applications, with names of 3 referees, to the Secretary at the Edgware General Hospital, Edgware, Middlesex, by 29th January, 1949.

HENDON GROUP HOSPITAL MANAGEMENT COMMITTEE. 2 RESIDENT HOUSE SURGEONS (B2) for Edgware General (formerly Redhill County) Hospital, Edgware, Middlesex, posts vacant 1st March, 1949. Salary £250 p.a., plus bonus (now £30 in cash), board, lodging, and laundry. 6 months' appointment terminable by 1 month's notice. R practitioners eligible for H.M. Forces holding B2 posts, not considered.

Applications, stating age, qualifications, experience, and enclosing up to 3 copies of recent testimonials, to Medical Director of Hospital by 29th January.

HENDON GROUP HOSPITAL MANAGEMENT COMMITTEE. RESIDENT HOUSE PHYSICIAN (B2) for Edgware General (formerly Redhill County) Hospital, Edgware, Middlesex, post vacant 1st March, 1949. Salary £250 p.a., plus bonus (now £30 in cash), board, lodging, and laundry. 6 months' appointment terminable by one month's notice. R practitioners eligible for H.M. Forces holding B2 posts, not considered.

Applications, stating age, qualifications, experience, and enclosing up to 3 copies of recent testimonials, to Medical Director of Hospital by 29th January.

HEREFORDSHIRE HOSPITAL MANAGEMENT COMMITTEE. THE GENERAL HOSPITAL, HEREFORD. (154 Beds.) Required, HOUSE SURGEON (B1) in charge of Casualty, E.N.T., and Fracture Depts. Previous surgical experience essential. Salary £250 p.a., full residential emoluments, subject to review by the Birmingham Regional Board.

Applications, stating age, qualifications, and experience, with copies of 3 recent testimonials, should be sent to—

T. W. UPTON, Secretary.

HORTON HOSPITAL MANAGEMENT COMMITTEE, Epsom. SOUTH-WEST METROPOLITAN REGION. Required, 2 HOUSE PHYSICIANS (B2), Male or Female. Hospital provides all facilities for organised tuition and practise of modern psychiatry. Candidates should have held house appointments in general hospitals. Successful candidates would work under the direction of senior members of the staff and arrangements will be made for attending D.P.M. course. Salary £350 p.a., full residential emoluments. Appointments will, in the first instance, be limited to 6 months and, unless held by R practitioners, may be extended to 12 months.

Applications, giving full particulars, with copies of recent testimonials, to be sent to the Physician-Superintendent as soon as possible.

HARLOW WOOD ORTHOPÆDIC HOSPITAL, near Mansfield, NOTTS. (Regional Orthopædic Centre—340 Beds.) Required, RESIDENT HOUSE SURGEON (B2), Male or Female. Appointment for 6 months. Salary, with full residential emoluments, £300 p.a. Hospital recognised under the Government's Scheme for the Postgraduate Education of Medical Officers released from the Forces and falling within Classes I and III, where applicable.

Applications, with testimonials, to be sent to the Secretary.

HERTFORD NO. 1 GROUP HOSPITAL MANAGEMENT COMMITTEE. Required RESIDENT HOUSE SURGEON (A) at Haymeads Hospital, Bishop's Stortford, Herts. Appointment for 6 months. Salary £200 p.a. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered.

Applications, stating age, nationality, and experience, if any, with copies of 3 testimonials or references, to the Surgeon-Superintendent of the Hospital.

HALIFAX AREA HOSPITALS MANAGEMENT COMMITTEE. Required, HOUSE PHYSICIAN, Male or Female. Appointee will reside at the Royal Halifax Infirmary, but will be required to undertake regular service each day at the St. John's Hospital, Halifax, which at present accommodates 400 aged sick and chronic cases. This Hospital is in the process of development and will be ultimately provided with full medical and ancillary services. The House Physician will be responsible to the Medical Registrar, whose main duties are at this Hospital but who also undertakes duty at the Royal Halifax Infirmary, and to the Visiting Consultants. Appointee will devote the remainder of his time at the Royal Halifax Infirmary which is a hospital for acute sick patients with a busy Outpatients' Dept. Salary £350 p.a., plus full residential emoluments.

Applications, stating age, sex, nationality, qualifications, and experience, and containing the names and addresses of 3 persons from whom testimonials can be obtained, to be forwarded to R. W. RANSON, Secretary, Halifax Area Hospitals Management Committee, Royal Halifax Infirmary.

HULL A GROUP HOSPITAL MANAGEMENT COMMITTEE. HULL ROYAL INFIRMARY. Applications invited for following posts (Male):—

ORTHOPÆDIC HOUSE SURGEON (B2), vacant now. Post provides full experience in orthopædics and fractures. Hospital has a modern Fracture Dept. (11,000 attendances annually). Salary £300 p.a., full residential emoluments. R practitioners eligible for H.M. Forces holding A post, not considered.

CASUALTY OFFICER (A), vacant now. In addition to carrying out duties in the Casualty Dept. appointee will act as Houseman to a member of the Visiting Staff, and will thus obtain ward and outpatient clinic experience. Salary £250 p.a. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered.

Both appointments for 6 months in the first instance, but will be terminable by 1 month's notice on either side.

Applications to R. J. CARLESS, Secretary to the Management Committee, Hull Royal Infirmary.

HULL A GROUP HOSPITAL MANAGEMENT COMMITTEE. Required, JUNIOR HOUSE SURGEON (B2), Woman, at Maternity Hospital, Hull, Hedon-road (68 Beds), for 6 months. Salary £250 p.a., full residential emoluments.

Application forms, &c., may be obtained from, and should be returned as soon as possible to R. J. CARLESS, Secretary to the Committee, Hull Royal Infirmary.

HULL A GROUP HOSPITAL MANAGEMENT COMMITTEE. THE KINGSTON GENERAL HOSPITAL, HULL. (398 Beds.) Required, JUNIOR HOUSE OFFICER (A), medical, post vacant February; tenable for 1 year. Salary £250 p.a., plus full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for H.M. Forces appointment limited to 6 months.

Applications should be addressed to the Administrative Officer, at above address. R. J. CARLESS, Secretary.

Hull A Group, Hospital Management Committee.

ILFORD AND BARKING GROUP HOSPITAL MANAGEMENT COMMITTEE. There is a vacancy for an ASSISTANT TUBERCULOSIS OFFICER at the Barking Tuberculosis Clinic. Salary £750 p.a., by annual increments of £50 to £950 p.a., plus cost-of-living bonus at present £60 p.a.

Applications, with copies of current testimonials, should be addressed as soon as possible to the Secretary, Ilford and Barking Group H.M.C. No. 12, King George Hospital, Ilford, Essex.

IPSWICH GROUP HOSPITAL MANAGEMENT COMMITTEE. Applications invited from registered medical practitioners for following posts:—

East Suffolk and Ipswich Hospital and Ipswich Borough General Hospital

REGISTRAR (B1), non-resident, to the Gynæcological and Obstetric Depts., now vacant. Salary £550 p.a., plus £100 living-out allowance.

Ipswich Borough General Hospital

HOUSE SURGEON (B2) to the Orthopædic and Casualty Dept., now vacant. Salary £350 p.a.

SENIOR RESIDENT ANÆSTHETIST (B1), now vacant. Salary £400 p.a.

East Suffolk and Ipswich Hospital

HOUSE SURGEON (B2) to the Orthopædic and Fracture Dept., vacant 10th February. Salary £250 p.a.

CASUALTY OFFICER AND ASSISTANT HOUSE SURGEON (B2) to the Fracture and Orthopædic Dept., now vacant. Salary £250 p.a.

HOUSE SURGEON (A) to the Gynæcological and Obstetric Depts., vacant 1st February. Salary £250 p.a.

R practitioners holding A or B1 post cannot be considered for the B1 post unless ineligible for H.M. Forces. Those holding A post may apply for the B2 appointments. A post is open to those within 3 months of qualification. All salaries subject to revision in the light of the Spens report, and, with the exception of Registrar post, with full residential emoluments.

Applications with full particulars to be sent immediately to—

JOHN WILLIAMS, Secretary,
Hospital Management Committee.

East Suffolk and Ipswich Hospital, Ipswich.

KING EDWARD VII HOSPITAL, Windsor. (205 Beds.) Required, ORTHOPÆDIC AND ACCIDENT SERVICE HOUSE SURGEON, Male or Female, post vacant now. Salary £150 p.a., full residential emoluments. The holder of the post will be expected to undertake the duties of House Surgeon to the E.N.T. Dept. in addition.

Applications, with copies of recent testimonials, stating age, qualifications with dates, and nationality, should be sent to the Administrative Officer immediately.

KENT EDUCATION COMMITTEE. Applications invited from Male and Female practitioners, including those in H.M. Forces, for appointment of ASSISTANT COUNTY MEDICAL OFFICER (School Health Service) for work in North-West Kent. Salary scale £735 a year, with annual increments of £25 to £935 a year. Commencing salary will be fixed at a point on scale according to the experience and qualifications of successful candidate. Appointment superannuable, and successful candidate required to pass medical examination. Duties mainly those in connexion with the School Health Service, but appointee may be required to undertake other duties (including work in maternity and child welfare clinics). Preference given to those candidates who have had special experience in the diseases of children. The officer appointed will be required to provide a car, for which a travelling allowance will be paid in accordance with the County Council's scale.

Applications, stating age, qualifications, and experience, with the names and addresses of 2 persons as reference to professional ability and character, should be addressed by 3rd February, 1949, to—

A. ELLIOTT, M.D., School Medical Officer.

County Hall, Maidstone, 7th January, 1949.

ILKLEY AND OTLEY HOSPITAL MANAGEMENT COMMITTEE. THE GENERAL HOSPITAL, OTLEY, YORKS. Required, RESIDENT HOUSE SURGEON (B2). Experience in anæsthetics desirable. Salary £230 p.a., emoluments valued at £180 p.a.

Applications should be sent to the Medical Superintendent, The General Hospital, Otley, Yorks.

KEIGHLEY AND DISTRICT VICTORIA HOSPITAL, Keighley. (146 Beds.) BINGLEY, KEIGHLEY, SKIPTON AND SETTLE HOSPITAL MANAGEMENT COMMITTEE. Required, HOUSE PHYSICIAN (B2), Male or Female, post now vacant. Salary £250 p.a., full residential emoluments. R practitioners holding A post may apply, when appointment will be limited to 6 months.

Applications, stating age, qualifications, experience, and nationality, to be sent immediately to J. YOUNG, Secretary to the Committee, Keighley and District Victoria Hospital, Keighley, Yorks.

LLANDUDNO AND DISTRICT HOSPITAL. Caernarvon and ANGLESEY HOSPITAL MANAGEMENT COMMITTEE. Required, 2 RESIDENT HOUSE SURGEONS (A), posts now vacant. Appointments for 6 months. Salary £200 p.a., plus residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered.

Applications should be forwarded as soon as possible to H. HEWITT-COOKE, A.H.A., Secretary to the Hospital Management Committee, (temporary address) Llandudno and District Hospital, Llandudno, Caerns.

LEEDS A GROUP HOSPITAL MANAGEMENT COMMITTEE. JEWISH HERZL MOSER HOSPITAL. (40 Beds.) Required. RESIDENT MEDICAL OFFICER (B1). Salary £502 10s.–£602 10s. p.a., full residential emoluments. The Hospital treats medical and surgical cases. Appointment for 1 year, in the first instance, and subject to 1 month's notice on either side. Suitably qualified R practitioners holding B2 appointment invited to apply. R practitioners eligible for H.M. Forces holding B1 or A post, not considered.

Applications, stating age, qualifications, and details of previous experience, with names of 3 persons to whom reference may be made, should be forwarded as soon as possible to—

J. FOLKARD, Secretary to the Committee.

Administrative Offices, St. James's Hospital, Leeds, 9.

LEEDS A GROUP HOSPITAL MANAGEMENT COMMITTEE. ST. JAMES'S HOSPITAL. Required, HOUSE PHYSICIAN (B2) in Psychiatric and Mental Observation Wards. Appointee will, by arrangement with the Professor of Psychiatry, University of Leeds, be permitted to take part in the activities of his department. Further particulars of the appointment can be obtained from undersigned. Salary according to qualifications and experience with a minimum of £230 p.a., plus residential emoluments. R practitioners holding A post may apply when appointment will be limited to 6 months.

Applications, stating age, qualifications, and details of previous experience, with copies of 3 recent testimonials, should be forwarded as soon as possible to—

J. FOLKARD, Secretary to the Committee.

Administrative Offices, St. James's Hospital, Leeds, 9.

LANCASHIRE COUNTY COUNCIL. Divisional Health Services. Required, ASSISTANT DIVISIONAL MEDICAL OFFICERS. Appointments, which will be made by the appropriate Divisional Health Committees, will be whole-time and subject to the standing orders of the County Council. There are vacancies in a number of the Health Divisions within the Administrative County, the populations of the Divisions varying from 110,000 to 170,000. Duties will include the medical inspection of school children, maternity and child welfare work, and such other duties, including matters of administration in connexion with the services, as the County Council or the Divisional Health Committee may direct. Appointees may be required to carry out clinical work in hospitals and Outpatient Depts. under arrangements which may be made with the new Regional Hospital Boards, and to take refresher or other prescribed courses of instruction. Preference given to candidates who have held previous hospital appointments and have had special experience in children's diseases. Possession of a D.P.H. is desirable and will be an essential qualification for promotion to senior administrative posts. Salary £860 p.a., by annual increments of £50 to £1060 p.a. Appointment subject to passing medical examination and successful candidates required to contribute to a superannuation fund.

Forms of application and further particulars may be obtained from the County Medical Officer of Health, P.H. Dept., County Offices, Preston, to whom applications should be forwarded by 12th February, 1949. All communications must be endorsed "Assistant Divisional Medical Officer."

R. H. ADCOCK, Clerk of the County Council.

County Offices, Preston, January, 1949.

LANCASTER. ROYAL LANCASTER INFIRMARY. (230 Beds.) LANCASTER AND KENDAL HOSPITAL MANAGEMENT COMMITTEE. Applications invited for following posts:—

ORTHOPÆDIC AND CASUALTY HOUSE SURGEON (B2), vacant immediately. Salary £275 p.a., but a salary to £325 p.a. may be paid to applicant having more than usual experience, full residential emoluments.

HOUSE PHYSICIAN (A), vacant 1st April, 1949. Salary £225 p.a., full residential emoluments.

JUNIOR HOUSE SURGEON (A), vacant 1st April, 1949. Salary £225 p.a., full residential emoluments.

Applications should be sent to the Secretary, Lancaster and Kendal Hospital Management Committee, Royal Lancaster Infirmary, Lancaster.

LANCASTER MOOR HOSPITAL, Lancaster. (Regional Mental HOSPITAL.) Required, 4 HOUSE PHYSICIANS (B2), Male or Female. Previous general hospital experience desirable. Appointees will work under direction of Senior Psychiatrists. Salary £350 p.a., full residential emoluments. R practitioners holding A post may apply. Appointment limited to 6 months to R practitioners; otherwise may be extended to 12 months.

Apply to Medical Superintendent.

LINCOLN. BRACEBRIDGE HEATH MENTAL HOSPITAL. LINCOLN NO. 2 HOSPITAL MANAGEMENT COMMITTEE. Required, ASSISTANT MEDICAL OFFICER (B1), Male or Female. There will be ample opportunity for studying modern methods of treatment in psychiatry. Commencing salary £502 10s. p.a., plus full residential emoluments for a single person. The Committee would have no objection to a married Medical Officer living out, in which case the sum of £125 p.a. would be payable in addition to salary. Appointment subject to provisions of National Health Service (Superannuation) Regulations, 1947, to the production of evidence of medical fitness and to 2 months' notice on either side.

Applications, with the names of 3 referees, should be forwarded as soon as possible to the Medical Superintendent, Bracebridge Heath Hospital, Bracebridge Heath, near Lincoln.

LINCOLN NO. 1 HOSPITAL MANAGEMENT COMMITTEE. COUNTY HOSPITAL, LINCOLN. (200 Beds.) Required. HOUSE SURGEON (A), Male or Female, post vacant shortly. Salary £275 p.a., full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for service with H.M. Forces appointment for 6 months.

Applications, stating age, nationality, qualifications with dates, with copies of 3 recent testimonials, should be sent to RONALD W. HOWICK, Secretary, Lincoln No. 1 Hospital Management Committee, County Hospital, Lincoln.

LIVERPOOL NORTH HOSPITAL MANAGEMENT COMMITTEE. BOOTLE GENERAL HOSPITAL, LIVERPOOL, 20. Required, HOUSE PHYSICIAN (A). Appointment for 6 months from date of appointment. Salary £200 p.a., residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered.

Applications, giving full particulars, with recent testimonials, should be sent by 2nd February, 1949, to F. J. WATKINS, Secretary to the Committee, Walton Hospital, Liverpool, 9.

LIVERPOOL REGIONAL HOSPITAL BOARD. South Liverpool HOSPITAL MANAGEMENT COMMITTEE. Applications invited for appointment of NON-RESIDENT ASSISTANT PATHOLOGIST (whole time) from persons who have had at least 18 months' experience in clincial pathology. Appointee required to work under the general direction of the Pathologist at the Smithdown Road Hospital. Salary scale £700–£100–£1200 and subject to adjustment in the light of any agreement on a national basis of revised rates of remuneration. Commencing point within this scale will be decided according to the experience of successful candidate. Post subject to National Health Service (Superannuation) Regulations, 1947/48, and to 3 months' notice on either side. Successful candidate required to undergo a medical examination.

Applications, giving full particulars of age, qualifications, and details of present and previous appointments with dates, with the names of 3 referees, should be addressed to Dr. LLOYD HUGHES, Senior Administrative Medical Officer, Liverpool Regional Hospital Board, c/o Alder Hey Hospital, Eaton-road, Liverpool, 12, to be received by 5th February, 1949. Canvassing of members of the Board or Medical Advisory Appointments Committee will lead to disqualification.

VINCENT COLLINGE, Secretary to the Board.

MANCHESTER WEST HOSPITAL MANAGEMENT COMMITTEE. GROUP 14. PARK HOSPITAL, DAVYHULME, near MANCHESTER. (General Hospital—500 Beds.) Required, ORTHOPÆDIC HOUSE SURGEON (A) or (B2), Male or Female. Salary £250 p.a. for B2 post, and £200 p.a. for A appointment with a cost-of-living bonus and full residential emoluments. To R practitioner appointment for 6 months and renewable for a further period of 6 months. Appointment subject to medical examination and is superannuable. Hospital recognised for training for the higher qualifications of the Royal College of Surgeons.

Forms of application may be obtained from the Secretary, Park Hospital, Davyhulme, to whom all applications must be submitted.

MANCHESTER VICTORIA MEMORIAL JEWISH HOSPITAL, CHEETHAM, MANCHESTER, 8. (Non-Sectarian—102 Beds.) Required, CASUALTY OFFICER AND ORTHOPÆDIC HOUSE SURGEON (B2). Appointment for 6 months, duties to commence immediately. Salary £250 p.a., full residential emoluments.

Applications to be submitted forthwith to undersigned, with copies of 1–3 recent testimonials.

C. D. DRAKE, General Superintendent.

MANCHESTER SOUTH HOSPITAL MANAGEMENT COMMITTEE. BAGULEY EMERGENCY HOSPITAL, near ALTRINCHAM, CHESHIRE. Required, RESIDENT MEDICAL OFFICER (B1), Thoracic Unit. The Unit is the Regional Centre for non-tuberculous chest cases under the direction of Mr. Graham Bryce, F.R.C.S., and successful candidate will, therefore, have excellent facilities for gaining much useful experience. Appointment is full time, terminable by 1 month's notice on either side. Cash salary £428, rising to maximum of £570 p.a., board, residence, and laundry in addition, valued for superannuation purposes at £100 p.a. Suitably qualified R practitioners holding B2 post also those holding B1 and ineligible for H.M. Forces, may apply.

Applications, stating present appointment if any, giving full details of experience, with copies of 2 testimonials, should be addressed to undersigned and be received by 5th February, 1949.

A. H. KEATES, Secretary.

Christie Hospital and Holt Radium Institute, Manchester.

MID-WORCESTERSHIRE HOSPITAL MANAGEMENT COMMITTEE. KIDDERMINSTER AND DISTRICT GENERAL HOSPITAL. Required, CASUALTY OFFICER (A), Male or Female. Salary £200 p.a., full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for service with H.M. Forces appointment limited to 6 months.

Applications should be sent at once to the Acting Administrative Officer of the Hospital. C. M. SMITH, Secretary.

MID HERTS GROUP HOSPITAL MANAGEMENT COMMITTEE. OSTERHILLS HOSPITAL. Required, HOUSE PHYSICIAN (A), Male. Appointment for 6 months. Salary £200 p.a., full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered.

Applications should be sent to the Secretary, Mid Herts Group Hospital Management Committee, Osterhills Hospital, Normandy-road, St. Albans.

MID-KENT HOSPITAL MANAGEMENT COMMITTEE. Kent COUNTY OPHTHALMIC AND AURAL HOSPITAL, MAIDSTONE. (113 Beds.) Required, HOUSE SURGEON (B1) in the E.N.T. Dept. at the above Hospital. Applicants must be unmarried and should have had experience in the specialty. The Hospital is fully recognised by the Examining Board for the D.L.O. Salary £350 a year, residential emoluments. Appointment for 6 months, with an option to a further 6 months.

Applications, stating age, nationality, experience, and qualifications, with copies of 2 recent testimonials to the Secretary at the Hospital.

MANSFIELD HOSPITAL MANAGEMENT COMMITTEE. Victoria HOSPITAL, MANSFIELD, NOTTS. Applications invited from registered medical practitioners, preferably with some previous experience in midwifery for appointment of ASSISTANT RESIDENT MEDICAL OFFICER (A), Female, post now vacant. The Hospital has an Obstetrical Unit of 32 beds and accommodation for approximately 240 general, medical, surgical acute, and long-stay cases. Salary £300 p.a., residential emoluments. Appointment for 6 months, renewable upon application.

Applications, stating age, experience, and qualifications, with names and addresses of 2 referees, should be sent to undersigned, from whom further information relating to the appointment may be obtained. A. ASHWORTH, Secretary.

Mansfield Hospital Management Committee,
Oak Bank, Crow Hill-drive, Mansfield, Notts.

MANSFIELD HOSPITAL MANAGEMENT COMMITTEE. Mans-FIELD AND DISTRICT GENERAL HOSPITAL, MANSFIELD, NOTTS. (245 Beds.) Required, ASSISTANT ANÆSTHETIST (B1), resident, recognised for D.A. Candidates must have had special experience in anæsthesia and if not in possession of a D.A. should be studying for such a diploma. Appointment for 1 year. Salary £375 p.a., plus residential emoluments. R practitioners, eligible for H.M. Forces holding B1 appointment, not considered.

Applications, stating age, qualifications, and experience, with copies of 2 testimonials, should be forwarded immediately to—
A. ASHWORTH, Secretary.

Mansfield Hospital Management Committee.

MEDWAY AND GRAVESEND HOSPITAL MANAGEMENT COMMITTEE. ALL SAINTS' HOSPITAL, CHATHAM. (416 Beds.) Applications invited from registered medical practitioners of either sex for following resident medical appointments now vacant:—

HOUSE SURGEON (A).
JUNIOR OBSTETRIC SURGEON (A).

Salary in each case £200 p.a., full residential emoluments. To R practitioner appointment limited to 6 months. Duties of Obstetric Surgeon will include a limited amount of general duties.

Applications, stating age, nationality, qualifications, and experience, with copies of recent testimonials, to be forwarded to the Surgeon-Superintendent as soon as possible.

MOUNT VERNON HOSPITAL AND THE RADIUM INSTITUTE, NORTHWOOD, MIDDLESEX. Required, HOUSE SURGEON (A) in the Radiotherapy and Gynæcological Depts., post vacant 9th February, 1949. Salary £120 p.a., full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for service with H.M. Forces appointment for 6 months.

Applications, with testimonials, to be forwarded immediately to the Secretary and House Governor.

MINISTRY OF PENSIONS.

Stoke Mandeville Hospital, Aylesbury, Bucks

Applications invited from registered medical practitioners for following appointments with the Spinal Injuries Unit at above-named Hospital:—

SURGICAL OFFICER (B1), Male. Salary £490–£540 p.a., and free board and lodging. Suitably qualified R practitioners holding B2 appointments invited to apply. R practitioners eligible for H.M. Forces holding B1 posts, not considered.

MEDICAL OFFICER (B2), Male or Female. Salary £428–£480 p.a., and free board and lodging. R practitioners holding A post may apply, when appointment will be limited to 6 months.

Applications, stating date of birth, qualifications with dates, and nationality, with copies of 2 recent testimonials, should be addressed to the Secretary, Ministry of Pensions, Medical Services Division, Norcross, Blackpool, Lancs.

MAIDENHEAD HOSPITAL, Berkshire. (100 Beds.) Required, HOUSE PHYSICIAN (A), post now vacant. Salary £200 p.a., full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for service with H.M. Forces appointment for 6 months.

Applications, with copies of 3 testimonials or the names of referees, to the Superintendent-Secretary.

MEDWAY AND GRAVESEND HOSPITAL MANAGEMENT COMMITTEE. GRAVESEND AND NORTH KENT HOSPITAL. Applications invited from registered medical practitioners for following posts, now vacant:—

SENIOR HOUSE SURGEON. Salary £350 p.a., full residential emoluments.

CASUALTY OFFICER. Salary £175 p.a., full residential emoluments.

Either appointment, if held by R practitioner, will be for 6 months.

Applications, stating age, nationality, qualifications, and experience, with copies of recent testimonials, to the Administrative Officer as soon as possible.

MEDWAY AND GRAVESEND HOSPITAL MANAGEMENT COMMITTEE. GRAVESEND AND NORTH KENT HOSPITAL. Required, HOUSE PHYSICIAN. Salary £200 p.a., full residential emoluments. To R practitioner post limited to 6 months.

Applications, stating age, nationality, qualifications, and experience, with copies of recent testimonials, to be forwarded to the Administrative Officer at the Hospital as soon as possible.

NOTTINGHAMSHIRE COUNTY COUNCIL. Required, ASSISTANT COUNTY MEDICAL OFFICER (Male or Female), at a salary of £675–£25–£875 p.a., plus bonus of £60 p.a., for duties connected mainly with maternity and child welfare and school health services.

Application forms and further particulars are obtainable from the County Medical Officer, County Hall, Trent Bridge, Nottingham, to whom completed applications must be returned by 4th February, 1949. Canvassing will disqualify.

K. TWEEDALE MEABY, Clerk of the County Council.
Shire Hall, Nottingham.

NOTTINGHAM. THE HOGARTH RADIOTHERAPEUTIC CENTRE AT THE GENERAL HOSPITAL, NOTTINGHAM. Required, RESIDENT RADIOTHERAPY OFFICER (B1). Appointment for 6 months in the first instance and then eligible for reappointment at a salary of £400 p.a., full residential emoluments. The position is one which would appeal to medical practitioners wishing to specialise in radiotherapy, and will include full opportunities for acquiring the necessary clinical experience for the Diploma of Radiotherapy. R practitioners eligible for H.M. Forces holding B1 post, not considered.

Applications, with copies of 1–3 recent references, to be sent as soon as possible to HENRY M. STANLEY, Secretary.

Nottingham Area No. 1 Hospital Management Committee.

NOTTINGHAM AREA NO. 1 HOSPITAL MANAGEMENT COMMITTEE. GENERAL HOSPITAL, NOTTINGHAM. Required, AURAL REGISTRAR, for duties to commence about 5th February. Appointment is full time. Salary £700 p.a., non-resident; £600 resident. The E.N.T. Dept. has 53 beds and a large Outpatient Dept., and is recognised for the D.L.O.

Applications to be addressed to undersigned, stating age, qualifications, and experience, with copies of testimonials.

HENRY M. STANLEY, Secretary.

NOTTINGHAM AREA NO. 1 HOSPITAL MANAGEMENT COMMITTEE. GENERAL HOSPITAL, NOTTINGHAM. (547 Beds, including "The Cedars" Branch Hospital.) Required, RESIDENT ORTHOPÆDIC AND FRACTURE HOUSE SURGEON (B2). Applicants should have had previous experience in fracture and orthopædic work. The Orthopædic Dept. serves a large industrial district and the post offers exceptional experience in traumatic surgery. Appointment for 6 months in the first instance. Duties to commence as soon as possible. Salary £300 p.a., with full residential emoluments.

Applications to be forwarded as soon as possible to—
HENRY M. STANLEY, Secretary.

NOTTINGHAM AREA NO. 1 HOSPITAL MANAGEMENT COMMITTEE. GENERAL HOSPITAL, NOTTINGHAM. (547 Beds, including "The Cedars" Branch Hospital.) Required, HOUSE PHYSICIAN (A). Salary £300 p.a., full residential emoluments. Duties to commence about 28th February. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for service with H.M. Forces appointment for 6 months.

Applications, stating age, qualifications, and experience, with copies of testimonials to be sent to—
3rd January, 1949. HENRY M. STANLEY, Secretary.

NOTTINGHAM AREA NO. 1 HOSPITAL MANAGEMENT COMMITTEE. GENERAL HOSPITAL, NOTTINGHAM. (547 Beds, including "The Cedars" Branch Hospital.) MEDICAL REGISTRAR, full time, resident, required. Salary according to qualifications and experience, but not less than £600 p.a.

Applications, with copies of testimonials, stating age, qualifications, and experience, should be sent to the Secretary, Nottingham General Hospital.

NOTTINGHAM AREA NO. 1 HOSPITAL MANAGEMENT COMMITTEE. NOTTINGHAM GENERAL HOSPITAL. (547 Beds including "The Cedars" Branch Hospital.) Required, HOUSE SURGEON (B2), duties to commence 11th February. Salary £300 p.a., full residential emoluments. To R practitioner appointment for 6 months. Applicants should be interested in urology.

Applications, stating age, qualifications, and experience, with copies of testimonials, to be sent to—
HENRY M. STANLEY, Secretary.

NOTTINGHAM NO. 2 HOSPITAL MANAGEMENT COM-MITTEE. Required, RESIDENT HOUSE PHYSICIAN (A) at the City Hospital, Hucknall-road, Nottingham (857 Beds). Appointment for 6 months. Salary £250 p.a., plus half cost-of-living bonus and full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered.

Applications, stating age, nationality, and qualifications, with copies of 1–3 testimonials, to be sent to the Medical Superintendent.

NOTTINGHAM NO. 2 HOSPITAL MANAGEMENT COM-MITTEE. CITY HOSPITAL, NOTTINGHAM. Applications invited for post of REGISTRAR to the Dept. of Thoracic Surgery. Candidates must hold the Diploma of F.R.C.S., and preference given to those with previous experience in thoracic surgery. Salary £850 p.a. (non-resident), and subject to adjustment in the light of any agreement on a national basis of revised rates of remuneration. Successful candidate will be attached to the thoracic surgical team with duties for non-tuberculous thoracic surgery at the City Hospital and pulmonary tuberculosis at Ransom Sanatorium. Appointment for 1 year in the first instance.

Applications, stating age, nationality, qualifications, and experience, with the names of 3 referees, to be submitted to the Medical Superintendent, City Hospital, Hucknall-road, Nottingham, by 8th February, 1949.

NOTTINGHAM NO. 2 HOSPITAL MANAGEMENT COMMITTEE. Applications invited for post of PÆDIATRIC REGISTRAR to the medical wards at the Children's Hospital and the City Hospital, Nottingham. Candidates should hold a higher qualification or diploma, and must have had previous experience in pædiatrics. Salary on scale £750–£850 p.a. (non-resident), according to experience, and subject to adjustment in the light of any agreement on a national basis of revised rates of remuneration.

Applications, stating age, nationality, qualifications, and experience, with the names of 3 referees, to be submitted to the Secretary, J. H. HARGREAVES, Esq., A.C.A., A.H.A., City Hospital South, Hucknall-road, Nottingham, by 8th February, 1949.

NEWCASTLE UPON TYNE REGIONAL HOSPITAL BOARD. SPECIAL AREA COMMITTEE FOR CUMBERLAND AND NORTH WESTMORLAND. Required, SPECIALIST IN VENEREAL DISEASES (whole time) for the Cumberland and North Westmorland Special Area, salary £1600 p.a., subject to retrospective adjustment according to national scales now being negotiated. Candidates should have had wide experience in treatment of venereal diseases in both sexes. A small number of beds will be allocated at the Cumberland Infirmary, Carlisle; Whitehaven Hospital, Whitehaven; and at the Dumfries and Galloway Royal Infirmary, Dumfries, in consultation with the Dumfries and Galloway Hospital Board. Appointee will be expected to reside within reasonable distance of Carlisle and will be in clinical charge of all the V.D. clinics in the Special Area, but will probably receive assistance from part-time doctors in certain of the clinics. Appointment subject to National Health Service (Superannuation) Regulations, 1947, to 3 months' notice on either side and to passing medical examination.

Applications to be sent to the Senior Administrative Medical Officer, Newcastle upon Tyne Regional Hospital Board, "Dunira," Osborne-road, Newcastle upon Tyne, 2, by 31st January, 1949, with copies of 3 testimonials and/or the names of 1–3 referees. Canvassing will disqualify.

NEWCASTLE UPON TYNE REGIONAL HOSPITAL BOARD. Required, ASSISTANT PATHOLOGIST, with special interest or training in bacteriology, whole time, non-resident, for duties in the Laboratories of the hospitals in Cumberland and North Westmorland, the main laboratory being at the Cumberland Infirmary, Carlisle. The work is general, but includes public health bacteriology for the area. Salary on provisional scale of £1100–£50–£1500 p.a., with placing on scale according to experience, subject to retrospective adjustment according to national scales now being negotiated. Further particulars can be obtained from Dr. Steven Faulds, Pathologist, Pathological Laboratory, Cumberland Infirmary, Carlisle. Appointment subject to National Health Service (Superannuation) Regulations, 1947, to 3 months' notice on either side and to passing medical examination.

Applications to be sent to the Senior Administrative Medical Officer, Newcastle upon Tyne Regional Hospital Board, "Dunira," Osborne-road, Newcastle upon Tyne, 2, by 5th February, 1949, with copies of 3 testimonials and/or the names of 1–3 referees. Canvassing will disqualify.

NEWCASTLE GENERAL HOSPITAL. (860 Beds.) Newcastle REGIONAL HOSPITAL BOARD. Required, DIRECTOR OF PATHOLOGY. Successful applicant may be appointed a Lecturer in the Dept. of Pathology in the Newcastle upon Tyne School of Medicine. Salary £1600 p.a., subject to retrospective adjustment according to national scales now being negotiated. Appointment subject to 3 months' notice on either side, to National Health Service (Superannuation) Regulations, 1947, and to medical examination.

Applications, with the names and addresses of 3 referees and/or copy of 3 testimonials, to the Senior Administrative Medical Officer, "Dunira," Osborne-road, Newcastle, by 5th February, 1949. Canvassing will disqualify.

NORTH RIDING COUNTY COUNCIL. Applications invited from suitably qualified Women for post of ASSISTANT MEDICAL OFFICER, to carry out duties relating to a mobile clinic to serve a rural area immediately to the North of York City. Salary scale £735, by £25 annually to £935 p.a., but the commencing salary may have regard to previous experience. Medical examination necessary, post superannuable. Experience in children's diseases and infant feeding is essential. Possession of a D.C.H. and recent experience in a maternity hospital considered additional qualifications. Car desirable.

Applications should be made on a form obtainable from undersigned and returnable by 7th February, 1949. Canvassing will disqualify.

H. G. THORNLEY, Clerk of the County Council.

County Hall, Northallerton, Yorks, 28th December, 1948.

NEWPORT AND EAST MONMOUTHSHIRE HOSPITALS MANAGEMENT COMMITTEE. THE ROYAL GWENT HOSPITAL, NEWPORT, MON. (256 Beds.) Applications invited from registered medical practitioners, Male or Female, for following posts:—

(*a*) CASUALTY OFFICER (B2) or (A), vacant 12th February, 1949. Salary £210 or £175 p.a., residential emoluments.

(*b*) HOUSE SURGEON (A), vacant 1st March, 1949. Salary £175 p.a., residential emoluments. Post recognised for the F.R.C.S. (England).

(*c*) HOUSE PHYSICIAN (B2), vacant 1st March, 1949. Salary £210 p.a., residential emoluments.

Applications, stating age, nationality, qualifications with dates, and details of previous appointments, with copies of 3 recent testimonials, should be sent to T. A. JONES, Secretary, Newport and East Monmouthshire Hospitals Management Committee, 16, Cardiff-road, Newport, Mon.

NEWPORT AND EAST MONMOUTHSHIRE HOSPITALS MANAGEMENT COMMITTEE. Required, RESIDENT MEDICAL AND SURGICAL OFFICER (B2) at Pontypool and District Hospital, post now vacant. Salary £300 p.a., full residential emoluments. Appointment for 6 months in first instance.

Applications, stating age and qualifications, with copies of 3 recent testimonials, to be sent to the Secretary-Superintendent, Pontypool and District Hospital, Pontypool, Monmouthshire.

NETHERNE HOSPITAL MANAGEMENT COMMITTEE. House PHYSICIANS (B2) required at Netherne Hospital for Mental and Nervous Diseases, Coulsdon, Surrey. Applicants, including R practitioners holding A appointments, must have held house appointments in a general hospital. The teaching associated with the posts will enable the successful applicants to become acquainted with all modern forms of mental treatment and to gain some knowledge of the neuroses and psychoses. There are opportunities for promotion with a view to future specialisation. Salary between £350 and £450 p.a. (depending on the length of qualification) plus bonus of £59 16s. p.a. and residential emoluments. In the case of applicants living out, an extra £150 p.a. paid in lieu of residential emoluments. Appointment for 6 months, which may be renewed for 1 further period (except in the case of R practitioners).

Applications to be sent to the Medical Superintendent, Netherne Hospital, Coulsdon, with copies of 2 recent testimonials, by 29th January, 1949.

NORFOLK ADMINISTRATIVE COUNTY. The Norfolk County Council and the District Councils concerned invite applications from medical practitioners qualified to hold such an office by reason of the terms of the Sanitary Officers (Outside London) Regulations, 1935, for combined whole-time appointment of ASSISTANT COUNTY MEDICAL OFFICER AND MEDICAL OFFICER OF HEALTH for the under-mentioned County area:—

Area No. 3: Mitford and Launditch Rural District and East Dereham Urban District, population about 24,000.

Salary for combined appointment £1100 p.a., with travelling expenses in accordance with the County Council's scale. Post will be designated under the Local Government Superannuation Act, 1937, and salary subject to statutory deductions for this purpose. Successful applicant required to pass a medical examination. The Officer will act as Assistant County Medical Officer under the direction of the County Medical Officer, and, as Medical Officer of Health, he will be subject to the control of the District Councils concerned. He will be required to live at an approved centre within the area. Termination of appointment subject to 3 months' notice to be received by the Clerk of the County Council.

Applications must be made on the prescribed form, which can be obtained from the County Medical Officer, P.H. Dept., 29, Thorpe-road, Norwich, to whom they should be returned with copies of 1–3 recent testimonials, by 7th February, 1949. Canvassing in any form will be a disqualification.

H. OSWALD BROWN, Clerk of the County Council.

January, 1949.

NORFOLK AND NORWICH HOSPITAL, Norwich. (440 Beds.) Required, HOUSE PHYSICIAN (B2). Salary £250 p.a., full residential emoluments. R practitioners holding A posts may apply, when appointment will be limited to 6 months.

Applications should be sent as soon as possible to—

F. L. GATFIELD, Secretary.

NORFOLK AND NORWICH HOSPITAL, Norwich. (440 Beds.) Applications invited for following appointments:—

HOUSE SURGEON (B2) to E.N.T. and Ophthalmic Depts. Salary £250 p.a., full residential emoluments. R practitioners holding A post may apply, when appointment will be limited to 6 months.

GENERAL HOUSE SURGEON (A). Salary £250 p.a., full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioners liable for service with H.M. Forces appointment for 6 months.

Applications should be sent as soon as possible to—

F. L. GATFIELD, Secretary.

ORMSKIRK AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE. COUNTY HOSPITAL, ORMSKIRK. Required, RESIDENT MEDICAL OFFICER (B1), Male, for general medical and surgical duties. Some obstetrical experience desirable. Salary £475 p.a., full residential emoluments. R practitioners eligible for H.M. Forces holding B1 or A post, not considered. Appointment superannuable and successful applicant required to pass medical examination.

Applications, stating age, nationality, qualifications and experience, with the names of 2 referees, should be forwarded as soon as possible to—

H. E. BECK, A.H.A., Secretary to the Committee.

County Hospital, Ormskirk, Lancs.

PLYMOUTH, SOUTH DEVON, AND EAST CORNWALL GENERAL HOSPITAL MANAGEMENT COMMITTEE. Required, HOUSE SURGEON (A), surgery with casualty, for duty at the South Devon and East Cornwall Hospital, Devonport, post vacant forthwith. Salary £250 p.a., full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for service with H.M. Forces appointment for 6 months.

Applications to ARTHUR R. CASH, Secretary, c/o The South Devon and East Cornwall Hospital, Greenbank, Plymouth.

PLYMOUTH, SOUTH DEVON, AND EAST CORNWALL GENERAL HOSPITAL MANAGEMENT COMMITTEE. Required, HOUSE SURGEON (A), post now vacant for duty at the South Devon and East Cornwall Hospital, Greenbank-road. Salary £250 p.a., full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for service with H.M. Forces appointment for 6 months.

Applications to ARTHUR R. CASH, Secretary, c/o The South Devon and East Cornwall Hospital, Greenbank, Plymouth.

PLYMOUTH, SOUTH DEVON, AND EAST CORNWALL GENERAL HOSPITAL MANAGEMENT COMMITTEE. Required, HOUSE SURGEON (A) to the E.N.T. Dept. of the South Devon and East Cornwall Hospital, Greenbank-road, Plymouth, post vacant forthwith. Salary £250 p.a., full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for service with H.M. Forces appointment for 6 months.

Applications to ARTHUR R. CASH, Secretary.

PLYMOUTH, SOUTH DEVON, AND EAST CORNWALL HOSPITAL, Freedom Fields, PLYMOUTH. (Formerly the City General Hospital.) THE PLYMOUTH, SOUTH DEVON, AND EAST CORNWALL GENERAL HOSPITAL MANAGEMENT COMMITTEE. Required, HOUSE SURGEON (A), Male or Female. Appointment for 6 months and terminable by 1 month's notice on either side. Salary £250 p.a., plus full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. Further information of the appointment may be obtained on request.

Applications, stating age, sex, nationality, qualifications, and experience, with copies of 3 recent testimonials, should be sent to ARTHUR R. CASH, Secretary.

South Devon and East Cornwall Hospital,
Greenbank-road, Plymouth.

PRESTON AND CHORLEY HOSPITAL MANAGEMENT COMMITTEE. PRESTON ROYAL INFIRMARY. (400 Beds.) Required, RESIDENT ANÆSTHETIST (B2), post now vacant for duties under Specialist Anæsthetist. Recognised for D.A. examination. Salary £250 p.a., usual residential emoluments. R practitioners holding A posts and ex-Service medical officers invited to apply.

Applications, stating age, qualifications with dates, and nationality, with copies of 3 testimonials, should be forwarded to the Secretary, Royal Infirmary, Preston.

PRESTON AND CHORLEY HOSPITAL MANAGEMENT COMMITTEE. PRESTON INFECTIOUS DISEASES HOSPITAL. (101 Beds.) THE CHESTNUTS SANATORIUM, PRESTON. (30 Beds.) Required, MEDICAL OFFICER (B2), Male or Female, for above Hospitals. The Preston Infectious Diseases Hospital has 61 beds for fever and 40 for pulmonary tuberculosis. At the Sanatorium there are 30 pulmonary beds. Visiting Specialists. Salary £200 p.a., usual residential emoluments.

Applications, stating age, nationality, qualifications, and experience, with copies of 3 recent testimonials, should be forwarded to the Secretary, Hospital Management Committee, c/o Royal Infirmary, Preston, by 31st January, 1949.

JOHN GIBSON, Secretary.

PRESTON AND CHORLEY HOSPITAL MANAGEMENT COMMITTEE. SHAROE GREEN HOSPITAL. (350 Beds.) Required, JUNIOR RESIDENT MEDICAL OFFICER (A), post vacant 1st March, 1949. Salary £200, full residential emoluments. To R practitioner appointment for 6 months; otherwise will not exceed 1 year.

Applications should be sent as soon as possible to the Medical Superintendent, Sharoe Green Hospital, Fulwood, Preston.

POTTERS BAR AND DISTRICT HOSPITAL. Required, Resident MEDICAL OFFICER (B2), Male or Female, to commence duty as soon as possible. This is a new appointment, and successful candidate will be the only Resident Medical Officer. Salary £250 p.a., full residential emoluments valued at £100 p.a. Appointment for 6 months if held by a practitioner liable under the National Service Acts.

Applications, stating age, qualifications with dates, and details of experience, with copies of 2 recent testimonials, should be sent to S. F. WILSHIRE, Secretary, Barnet Group Hospital Management Committee, 1, Wellhouse-lane, Barnet, Herts.

READING AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE. BATTLE HOSPITAL, READING. Applications invited from registered medical practitioners, Male, for following appointments:—

HOUSE SURGEON (A), vacant immediately. Salary £250 p.a., plus full residential emoluments.

RESIDENT MEDICAL OFFICER (B2) to Obstetrical and Gynæcological Depts., vacant immediately. Salary £250 p.a., plus full residential emoluments.

For A appointment, R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for service with H.M. Forces appointment for 6 months.

Applications, stating age, qualifications with dates, nationality, present post, with copies of 3 recent testimonials, should be sent immediately to the Administrative Officer, Royal Berkshire Hospital, Reading.

READING AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE. BATTLE HOSPITAL, READING. (429 Beds.) Required, HOUSE PHYSICIAN (A), Male, with some anæsthetic duties, post vacant 2nd February. Salary £250 p.a., full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for service with H.M. Forces appointment for 6 months.

Applications, stating age, qualifications, with dates, nationality, present post, with copies of 3 recent testimonials, should be sent immediately to the Administrative Officer, Royal Berkshire Hospital.

READING AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE. ROYAL BERKSHIRE HOSPITAL. (383 Beds.) Required, ASSISTANT (B2), Male, to Accident Surgeon, post vacant immediately. Salary £300 p.a., full residential emoluments. To practitioner liable for service with H.M. Forces appointment for 6 months.

Applications should be sent immediately to the Administrative Officer, Royal Berkshire Hospital, Reading.

ROTHERHAM AND MEXBOROUGH HOSPITAL MANAGEMENT COMMITTEE. Required, RESIDENT MEDICAL OFFICER (A), at Moorgate General Hospital, Rotherham, Yorks (366 Beds, 38 Cots). Commencing salary £280 p.a., residential emoluments valued at £110 p.a., a total of £390 p.a. for superannuation purposes. R practitioners, ineligible for H.M. Forces or under 25½ years of age not having held an A post, considered. Appointment subject to National Health Service (Superannuation) Regulations, 1947/48, and to medical examination.

Applications, stating age, qualifications, experience, and nationality, with names of 3 referees, to be addressed to the Secretary to the Committee, Montagu Hospital, Mexborough, Yorkshire, as soon as possible.

ROTHERHAM AND MEXBOROUGH HOSPITAL MANAGEMENT COMMITTEE. Applications invited from registered medical practitioners for following posts:—

Moorgate General Hospital, Rotherham, Yorks (404 Beds)
RESIDENT ASSISTANT MEDICAL OFFICER (A).
Montagu Hospital, Mexborough, Yorks (123 Beds)
RESIDENT HOUSE PHYSICIAN (A).

Commencing salary in each case £280 p.a., residential emoluments valued at £110 p.a., a total of £390 p.a. for superannuation purposes. R practitioners, ineligible for H.M. Forces or under 25½ years of age not having held an A post, considered. Appointments subject to National Health Service (Superannuation) Regulations, 1947/48, and to medical examination.

Applications, stating post applied for, age, qualifications, experience, and nationality, with names of 3 referees, to be addressed to the Secretary to the Committee, Montagu Hospital, Mexborough, Yorks, as soon as possible.

ROCHDALE AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE. Required, HOUSE SURGEON (A) or (B2), at the Rochdale Infirmary, post now vacant. Salary £333 15s. p.a. by 1 increment at the end of 6 months to £383 15s. Appointment is superannuable.

Applications, with full particulars, and the names of referees, as soon as possible to—

S. HODKINSON, Secretary to the Committee.
132, Drake-street, Rochdale.

ROCHDALE AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE. Required, RESIDENT SURGICAL OFFICER (B1), post now vacant at Rochdale Infirmary. Salary £502 10s. p.a., by annual increments of £25 to maximum of £602 10s. p.a., plus full residential emoluments valued at £130 p.a.

Applications, with full particulars and names of 3 referees, should be sent as soon as possible to S. HODKINSON, Secretary to the Committee, 132, Drake-street, Rochdale.

ROMFORD GROUP HOSPITAL MANAGEMENT COMMITTEE. Required, HOUSE SURGEON in the Orthopædic Dept. at Oldchurch Hospital, Romford, a modern hospital of 786 Beds providing treatment for all types of patients. Salary £270 a year, plus cost-of-living bonus, with residential emoluments valued at £160 a year. Appointment subject to provisions of the appropriate superannuation scheme, and to passing medical examination.

Applications, stating age, present appointment, qualifications, and experience, to be sent with names of 2 referees, to the Secretary to the Committee, Oldchurch Hospital, Romford, by 29th January, 1949.

ROYAL SALOP INFIRMARY AND COPTHORNE HOSPITAL, SHREWSBURY. (490 Beds.) GROUP 15 HOSPITAL MANAGEMENT COMMITTEE. Required, E.N.T. HOUSE SURGEON, Male or Female, post vacant immediately. Salary £2[illegible] p.a., full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for service with H.M. Forces appointment for 6 months; otherwise may be extended.

Applications, with full details, to be sent to—

J. P. MALLETT, Secretary.
Board Room, 13th January, 1949.

ROYAL SALOP INFIRMARY AND COPTHORNE HOSPITAL, SHREWSBURY. (490 Beds.) GROUP 15 HOSPITAL MANAGEMENT COMMITTEE. Required, RESIDENT ANÆSTHETIST, Male or Female, at the Copthorne Hospital. Salary £200 p.a., full residential emoluments.

Applications, with full details, to be sent to—

J. P. MALLETT, Secretary.
Board Room, 13th January, 1949.

ROYAL SALOP INFIRMARY, Shrewsbury. (240 Beds.) Group 15 HOSPITAL MANAGEMENT COMMITTEE. Required, HOUSE SURGEON (A), Male or Female, post vacant 23rd February, 1949. Salary £200 p.a., full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for service with H.M. Forces appointment for 6 months; otherwise may be extended.

Applications, with full details, to be sent to—

J. P. MALLETT, Secretary.
Board Room, 13th January, 1949.

ROYAL SALOP INFIRMARY, Shrewsbury. (240 Beds.) Group 15 HOSPITAL MANAGEMENT COMMITTEE. Required, HOUSE PHYSICIAN (A), Male or Female, post vacant immediately. Salary £200 p.a., full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for service with H.M. Forces appointment for 6 months; otherwise may be extended.

Applications to J. P. MALLETT, Secretary.
Board Room, 10th January, 1949.

ROYAL ISLE OF WIGHT COUNTY HOSPITAL, Ryde. Required, HOUSE PHYSICIAN AND CASUALTY OFFICER (A) or (B2), to take up duties 1st March, 1949. Appointment for 6 months. Salary £200–£300, according to experience, board, residence and laundry.

Applications, stating age, qualifications, and nationality, with copies of 3 recent testimonials, should be forwarded without delay to the Secretary-Superintendent.

SORRENTO AND LORDSWOOD MATERNITY HOSPITALS. BIRMINGHAM (SELLY OAK) HOSPITAL MANAGEMENT COMMITTEE, GROUP NO. 25. Required, OBSTETRIC HOUSE SURGEON (A) and (B2), post vacant 1st March. 9 months' appointment, recognised for the D.Obst.R.C.O.G., 6 months at Sorrento and 3 months at Lordswood Maternity Hospitals, for the first 3 months this is an A appointment with a salary of £200 p.a., plus full residential emoluments, and thereafter subject to satisfactory service it becomes a B2 appointment with a salary of £250 p.a.

Applications should be sent to the Obstetrician, Sorrento Maternity Hospital, Moseley, Birmingham, by 1st February, 1949.

ROYAL EAST SUSSEX HOSPITAL, Hastings. Hospital Management Committee (Hastings Group). Required, HOUSE SURGEON (A), post vacant immediately. Salary £250 p.a., full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for service with H.M. Forces appointment for 6 months.

Applications should be sent to—

WILFRID G. KEMSLEY, Secretary and House Governor.

SALISBURY GENERAL INFIRMARY. Salisbury Group Hospital Management Committee. Required, RESIDENT ANÆSTHETIST (A) or (B2), from 1st March for 6 months. Salary £200 or £250 p.a., residence.

Applications should be sent to the Secretary, Salisbury Hospital Management Committee, General Infirmary, Salisbury.

SALISBURY GROUP HOSPITAL MANAGEMENT COMMITTEE. Required, RESIDENT HOUSE SURGEON (A) or (B2) to, E.N.T. Dept. at Salisbury General Hospital. The department consists of 30 beds, shortly to be increased to 40. There is also a busy Outpatient Dept. and Audiometric Clinic. Appointment for 6 months. Salary for A post £200 or B2 post £250 p.a. full residential emoluments. It is desirable that successful applicant should commence duties as soon as possible. R practitioners holding A posts may apply.

Applications should be sent to the Secretary, Salisbury Group Hospital Management Committee, General Infirmary, Salisbury.

SUNDERLAND AREA HOSPITAL MANAGEMENT COMMITTEE. Applications invited for following posts :—

Royal Infirmary, Sunderland (312 Beds)

REGISTRAR for the Dept. of Physical Medicine. This appointment is renewable annually for a period of 3 years. Salary £650–£700–£750 p.a. This is a large and progressive department and the medical staff are linked up with other hospitals in the area.

E.N.T. AND CASUALTY HOUSE SURGEON (Male), vacant 20th January and tenable for 6 months. Salary £250–£350, according to qualifications and experience, full residential emoluments.

1 HOUSE SURGEON (A), Male, vacant 28th January, tenable for 6 months.

2 HOUSE PHYSICIANS (A), Male, vacant 19th January and 20th February.

This Hospital is recognised by the Royal College of Surgeons for the Fellowship. Salary for posts of House Physicians and House Surgeon is £200 p.a., full residential emoluments.

Seaham Hall Sanatorium (130 Beds), pulmonary and surgical tuberculosis.

RESIDENT MEDICAL OFFICER required. Salary £550 p.a., plus full residential emoluments.

Ryhope General Hospital, Ryhope (300 Beds)

HOUSE SURGEON (A). Salary £300 p.a., plus full residential emoluments.

Children's Hospital, Sunderland (70 Beds)

JUNIOR RESIDENT MEDICAL OFFICER (A), Female, vacant 9th February. Salary £200 p.a., full residential emoluments.

Sunderland General Hospital

HOUSE SURGEON (A), Male, vacant 16th February. Salary £200 p.a., full residential emoluments.

Monkwearmouth and Southwick Hospital, Sunderland

HOUSE SURGEON (A), now vacant.

HOUSE PHYSICIAN (A), vacant immediately.

R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, may apply for A appointments, but applicants for the other posts must be ineligible for service in H.M. Forces.

Applications, stating age and experience, with copy testimonials, to F. DAGNALL, Secretary,

Sunderland Area Hospital Management Committee,
Royal Infirmary, Sunderland.

SHEFFIELD REGIONAL HOSPITAL BOARD invite applications from registered medical practitioners for appointment of ASSISTANT ADMINISTRATIVE MEDICAL OFFICER on the Headquarters Staff of the Board at a salary of £1450, rising by annual increments of £50 to £1650 p.a. Candidates should have had clinical and administrative hospital experience. Termination of appointment subject to 3 months' notice on either side. Post subject to National Health Service (Superannuation) Regulations, 1947 and 1948, and to the passing of a medical examination.

Applications, giving full particulars of name, age, qualifications, and details of past and present appointments, with the names of 3 referees, should be addressed to the Secretary, Sheffield Regional Hospital Board, Fulwood House, Old Fulwood-road, Sheffield, 10, to be received by 12th February, 1949. Canvassing either directly or indirectly, will be a disqualification.

SHEFFIELD NO. 1 HOSPITAL MANAGEMENT COMMITTEE. Applications invited from duly qualified medical Women for appointment of RESIDENT ASSISTANT MEDICAL OFFICER at the Nether Edge Hospital. The principal duties will be in connexion with the Maternity Dept., which deals with approximately 1000 cases annually. There are also about 200 medical beds in the Hospital and the Officer will be required to assist in these wards. Basic salary £330 p.a., full residential emoluments.

Applications to be addressed as soon as possible to the Secretary, Nether Edge Hospital, Sheffield, 11.

SCUNTHORPE HOSPITAL MANAGEMENT COMMITTEE. SCUNTHORPE AND DISTRICT WAR MEMORIAL HOSPITAL, SCUNTHORPE, LINCS. (256 Beds.) Required, RESIDENT HOUSE PHYSICIAN (B1), post vacant 1st March, 1949. Salary £275 p.a. Suitably qualified practitioners holding B2 appointments invited to apply. R practitioners eligible for H.M. Forces holding B1 appointment, not considered.

Applications, stating age, qualifications, and experience, with copies of testimonials, immediately to S. LORD, Secretary.

SWANSEA HOSPITAL MANAGEMENT COMMITTEE, Group NO. 9. Required, RESIDENT MEDICAL OFFICER (A), Male or Female, at Hill House Isolation Hospital, Swansea. In addition to the treatment of infectious diseases the Hospital is also the centre for streptomycin treatment of tuberculous meningitis. Salary £350 p.a., plus £30 war bonus, full residential emoluments. To R practitioner appointment limited to 6 months.

Applications to O. C. HOWELLS, Secretary to the Committee. Swansea General and Eye Hospital.

SWANSEA GENERAL AND EYE HOSPITAL. Required, House PHYSICIAN (A), Male or Female, post now vacant. Salary £200 p.a., full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for service with H.M. Forces appointment for 6 months.

Applications should be forwarded to—

O. C. HOWELLS, Secretary-Superintendent.

SWANSEA GENERAL AND EYE HOSPITAL. Required, Junior CASUALTY OFFICER (A), Male or Female, combining the duties of Gynæcological House Surgeon, post now vacant. Salary £225 p.a., full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for service with H.M. Forces appointment limited to 6 months.

Applications should be forwarded to—

O. C. HOWELLS, Secretary-Superintendent.

STAFFORDSHIRE COUNTY COUNCIL. Stone Urban District Council. Applications invited for combined whole-time appointment of ASSISTANT COUNTY MEDICAL OFFICER AND MEDICAL OFFICER OF HEALTH of the Stone Urban District (estimated population 7860). Salary £1040 p.a., plus cost-of-living bonus of £59 16s. p.a. Selected candidate required to provide a motor-car, the allowances for which will be in accordance with the County Council scale. Applicants must be fully qualified medical practitioners holding the D.P.H., and preference given to those with experience in a similar capacity. Appointee will, as regards the duties of Assistant County Medical Officer, act under the direction of the County Medical Officer of Health, and be required to perform such duties as may from time to time be prescribed. As regards the duties of Medical Officer of Health, he will be subject to the sole control and direction of the Local Sanitary Authority. The combined appointment is subject to provisions of Local Government Superannuation Act, 1937, and successful candidate required to pass medical examination and produce his birth certificate. It will be subject to the approval of the Ministers of Health and Education, and also as far as the office of Medical Officer of Health is concerned, to the provisions of Sanitary Officers (Outside London) Regulations, 1935, and will be terminable by 3 months' notice in writing on either side, subject to the consent of the Minister of Health.

Forms of application may be obtained from the Clerk of the County Council and should be returned to him by first post, 1st February, 1949, with copies of 1–3 recent testimonials.

T. H. EVANS, Clerk of the County Council.

County Buildings, Stafford.
M. C. DOWNING, Clerk of the
January, 1949. Stone Urban District Council.

SOMERSET COUNTY. Applications invited from registered medical practitioners (Male) for post of DEPUTY COUNTY MEDICAL OFFICER OF HEALTH. Applicants must possess a D.P.H., and should have had previous clinical and administrative experience in general public health work. Successful candidate required to work under the direction of the County Medical Officer of Health and must be capable of assuming full responsibility in the absence of the County Medical Officer. Consolidated salary £1100 p.a., by annual increments of £50 to maximum of £1300 p.a. Travelling allowances for the use of the Officer's car on official business will be paid in accordance with the appropriate scale. Appointment superannuable and successful candidate required to pass medical examination.

Further particulars and forms of application may be obtained from undersigned, to whom the completed form should be returned, with the names and addresses of 3 referees, by 31st January, 1949. Canvassing, either directly or indirectly, will be deemed a disqualification; and candidates must disclose, in writing, whether to their knowledge they are related to any member of the County Council or to the holder of any senior office under the Council.

HAROLD KING, Clerk of the County Council.

County Hall, Taunton, 30th December, 1948.

SOMERSET COUNTY COUNCIL invite applications (Women) for an appointment as ASSISTANT COUNTY MEDICAL OFFICER OF HEALTH at a salary of £735 p.a., rising by £25 p.a. to £935 p.a. Applicants must be registered medical practitioners. Possession of the D.P.H. or D.C.H. an advantage. Duties mainly concerned with the services of maternity and child welfare. Possession of a motor-car is essential. Travelling allowance will be made in accordance with the County scale. Appointment superannuable and successful candidate required to pass medical examination.

Applications, on forms to be obtained from undersigned with the names and addresses of 2 referees, should be returned forthwith. J. F. DAVIDSON, County Medical Officer of Health.

County Hall, Taunton.

SOUTHAMPTON. THE ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL. (290 Beds.) **SOUTHAMPTON GROUT HOSPITAL MANAGEMENT COMMITTEE.** Required, RESIDENT CASUALTY OFFICER (A). Appointment for 6 months. Salary £250 p.a., full residential emoluments. The Hospital is the centre to which all trauma from a large industrial town and port is directed and thus provides excellent experience in the treatment of traumatic conditions.

Applications, with copies of testimonials, should be sent at once to the Secretary, c/o The Royal South Hants and Southampton Hospital.

SOUTHAMPTON GROUP HOSPITAL MANAGEMENT COMMITTEE. SOUTH-WEST METROPOLITAN REGION. Required, HOUSE SURGEON (A), post vacant 3rd February, 1949, to the Lymington and District Hospital (107 Beds). Appointment for 6 months. Salary £250 p.a., full residential emoluments.

Applications, stating age, qualifications, and nationality, with copies of 3 recent testimonials, should be forwarded to the Secretary of the Committee at the above Hospital immediately.

SOUTHAMPTON GROUP HOSPITAL MANAGEMENT COMMITTEE. Required, JUNIOR RESIDENT MEDICAL OFFICER (Male or Female) at Southampton Isolation Hospital and Sanatorium, Southampton. Salary £270 p.a., plus full residential emoluments. Appointment for 6 months in the first instance.

Applications, with copies of references, should be submitted as soon as possible to the Secretary, c/o Royal South Hants and Southampton Hospital, Southampton.

SOUTHAMPTON GROUP HOSPITAL MANAGEMENT COMMITTEE. RESIDENT HOUSE SURGEON (A) or (B2), Male or Female, required at the Southampton Borough General Hospital, post vacant immediately, tenable for 6 months. Salary £250 p.a., full residential emoluments.

Applications, with copies of recent testimonials, should be sent to FRANK JENNINGS, Secretary, c/o Royal South Hants and Southampton Hospital, Southampton.

SOUTH SHIELDS COUNTY BOROUGH. Applications invited from fully qualified and registered Women medical practitioners for post of ASSISTANT MEDICAL OFFICER (maternity and child welfare) at a salary of £735 p.a., by annual increments of £25 to maximum of £935 p.a. Appointment subject to provisions of Local Government Superannuation Act, 1937, and successful candidate required to pass medical examination. Appointee will be under the administrative control of the Medical Officer of Health and she must devote her whole time to the duties of the post and must not engage in private practice.

Form of application may be obtained from the M.O.H., Stanhope-road, South Shields. Applications, with copies of 3 recent testimonials, should be received at my office marked "Appointment of Assistant Medical Officer." Canvassing, directly or indirectly, will disqualify the applicants and candidates must disclose in writing whether they are related to any member or senior officer of the Council.

Town Hall, South Shields. HAROLD AYREY, Town Clerk.

SOUTH SHIELDS GENERAL HOSPITAL. Applications invited from registered medical practitioners for following appointments:—

HOUSE SURGEON (A), now vacant.
2 HOUSE PHYSICIANS (A), 1 vacant mid-February, 1949, 1 vacant 1st March, 1949.

Salary £210 p.a., plus emoluments valued for superannuation purposes at £120 p.a. If appointed for a second 6 months an increase of £50 p.a. will be granted. Salary subject to adjustment when national salary scales are introduced. To R practitioners appointment restricted to 6 months in the first instance.

Applications, with copies of 2 recent testimonials, to be sent to the Medical Superintendent, General Hospital, Harton-lane, South Shields, as soon as possible.

SOUTH MIDDLESEX FEVER HOSPITAL, Isleworth. SOUTH-WEST MIDDLESEX HOSPITAL MANAGEMENT COMMITTEE. Required, RESIDENT HOUSE SURGEON to the General Surgical Unit to be established at above Hospital. Salary £150 p.a., plus full residential emoluments and cost-of-living bonus.

Applications, stating age, nationality, qualifications, with copies of 2 testimonials, to be submitted to the Secretary of the Committee, 1, Churchfield-road, Ealing, W.13, by 29th January, 1949.

STAMFORD, RUTLAND, AND GENERAL INFIRMARY. Required, CASUALTY OFFICER AND HOUSE PHYSICIAN (A), Male or Female, post now vacant. Salary £200 p.a., full residential emoluments.

Applications, stating age, qualifications with dates, nationality, with copies of 3 recent testimonials, should be sent to the Secretary, The Infirmary, Stamford.

STOKE-ON-TRENT HOSPITAL MANAGEMENT COMMITTEE. NORTH STAFFORDSHIRE ROYAL INFIRMARY, STOKE-ON-TRENT. (475 Beds.) Required, HOUSE SURGEON (B2), Male or Female, post vacant 31st January, 1949. Salary within scale £250–£550 p.a., full residential emoluments, according to period of qualification. To R practitioner appointment limited to 6 months.

Applications, with copy testimonials, to be forwarded as soon as possible to the Secretary of the above Hospital.

AMENDED ADVERTISEMENT

STOCKPORT COUNTY BOROUGH EDUCATION COMMITTEE. Applications invited from fully qualified dental surgeons (Male or Female) for full-time post of SCHOOL DENTAL SURGEON, to act under the supervision of the School Medical Officer, at a salary of £610, by annual increments of £30 to maximum of £850 p.a., plus £60 p.a. cost-of-living bonus. In determining the commencing salary, account will be taken of previous experience. Appointment subject to provisions of the Local Government Superannuation Act.

Applications, giving full particulars of qualifications, experience, &c., with copies of 3 recent testimonials, should be forwarded to undersigned by 5th February, 1949.

E. GWYN THOMAS, Director of Education.

Education Offices, Town Hall, Stockport.

STOCKPORT AND BUXTON HOSPITAL MANAGEMENT COMMITTEE. THE STOCKPORT INFIRMARY. (167 Beds.) Required, HOUSE SURGEON (A), E.N.T. and Eye, approved under D.L.O., and D.O.M.S., regulations. Post available forthwith. Salary £150 p.a., full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered.

Applications, stating age, nationality, and qualifications, with copies of 2 testimonials, to be sent forthwith to—

H. G. PRICE, Secretary.

SOUTH-WEST METROPOLITAN REGIONAL HOSPITAL BOARD invite applications for appointment of Whole-time ASSISTANT PATHOLOGIST (non-resident) in the Mental Hospitals' Group Laboratory at West Park Hospital, Epsom, Surrey. Provisional salary grade £1050–£50–£1250 p.a., subject to review when the Spens report is implemented or in the light of adjustments on a national basis. Candidates should have had experience in all branches of clinical pathology and be specially interested in bacteriology and serology. Previous experience of work in mental hospitals is not essential. Appointment subject to provisions of the National Health Service (Superannuation) Regulations, 1947, and is terminable by 3 months' notice on either side.

Applications, stating age, qualifications, experience, and present appointment, and giving the names and addresses of 3 referees, should be made by letter and sent to the Secretary (S.D.I.), South-West Metropolitan Regional Hospital Board, 11A, Portland-place, London, W.1, to arrive by 31st January, 1949. Canvassing will disqualify.

SOUTH-WEST METROPOLITAN REGIONAL HOSPITAL BOARD invite applications for whole-time appointment of PHYSICIAN-SUPERINTENDENT at Cane Hill Hospital, Coulsdon, Surrey. Provisional salary £1825 p.a., plus emoluments (of a house) valued at £165 p.a. Salary subject to review when the Spens report is implemented or in the light of adjustments on a national basis. Candidates should possess the D.P.M. and a higher medical qualification is desirable. Besides the general administration of the main Hospital, successful candidate will be responsible for the Psychiatric Outpatient Clinics at St. Giles' Hospital, Camberwell, and St. Olave's Hospital, Rotherhithe. Appointment subject to provisions of National Health Service (Superannuation) Regulations, 1947, or the Asylum Officers Superannuation Act, 1909, and is terminable by 3 months' notice on either side.

Applications, stating age, qualifications, experience, and present appointment, and giving the names and addresses of 3 referees, should be made by letter and sent to the Secretary (S.D.I.) South-West Metropolitan Regional Hospital Board, 11A, Portland-place, London, W.1, to arrive by 31st January, 1949. Canvassing will disqualify.

SOUTH-EAST METROPOLITAN REGIONAL HOSPITAL BOARD. Applications invited for whole-time appointment of SENIOR PSYCHIATRIST at Bexley Hospital, Bexley, Kent. Provisional salary £1450 p.a., which is subject to adjustment in accordance with any national agreement which may be reached in the light of the Spens report. Appointment subject to provisions of National Health Service (Superannuation) Regulations, 1947, and terminable by 3 months' notice on either side. Candidates must possess a D.P.M. and preferably a higher qualification. Psychiatric hospital and outpatient clinic experience is essential, and candidates should have had experience in modern psychiatric therapeutic procedures including psychotherapy and occupational therapy.

Applications, stating age, sex, qualifications, experience, present appointment, and war service, with the names and addresses of 3 referees, to the Secretary, Advisory Appointments Committee, South-East Metropolitan Regional Hospital Board, 11, Portland-place, London, W.1, by 12th February, 1949. Canvassing members of the Board or of the Advisory Appointments Committee will lead to disqualification.

SOUTH-EAST METROPOLITAN REGIONAL HOSPITAL BOARD invite applications for a provisional appointment as Whole-time PATHOLOGIST to the River Hospitals, Joyce Green, Dartford, Kent. Provisional salary £1250 p.a., which is subject to adjustment in accordance with any national agreement which may be reached in the light of the Spens report. Appointment subject to provisions of National Health Service (Superannuation) Regulations, 1947, and is terminable by 3 months' notice on either side.

Applications, stating age, sex, qualifications, experience, and present appointment, with the names and addresses of 3 referees, should be addressed to the Secretary, Advisory Appointments Committee, South-East Metropolitan Regional Hospital Board, 11, Portland-place, London, W.1, by 12th February, 1949. Canvassing of members of the Board or the Advisory Appointments Committee will lead to disqualification. A visit to the laboratory can be arranged with the Medical Superintendent, West Hill Hospital, Dartford, Kent.

ST. PETER'S HOSPITAL, Chertsey. (403 Beds.) House Surgeons (A) or (B2), orthopædic, required for 6 months. Salary from £250 p.a., according to date of qualification, plus bonus and full residential emoluments, up to £450 plus bonus and emoluments may be paid to suitably qualified and experienced ex-Service candidates. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered.

Inquiries should be made to the Medical Superintendent of the Hospital, to whom applications should be sent immediately.

ST. ALBANS AND MID HERTS HOSPITAL, Church-crescent, ST. ALBANS. (114 Beds.) MID HERTS GROUP HOSPITAL MANAGEMENT COMMITTEE. Required, CASUALTY OFFICER (A), Male. Salary £200 p.a., full residential emoluments. Appointment limited to 6 months to practitioner liable for service with H.M. Forces.

Applications should be addressed to the Secretary, Mid Herts Group Hospital Management Committee, Osterhills Hospital, Normandy-road, St. Albans, Herts.

ST. PAUL'S HOSPITAL, Hemel Hempstead. Required, Resident OBSTETRIC HOUSE SURGEON (B2), Male or Female, for the Maternity Unit of 30 maternity beds and 12 antenatal beds. Salary £250–£350, according to experience, appointment being for 6 months from February. R practitioners holding A post may apply.

Applications to be sent to the Medical Superintendent by 5th February, 1949. Testimonials should not be sent, but applications should give full particulars, with names of 2 persons to whom medical reference can be made.

ST. HELIER (SURREY) GROUP OF HOSPITALS. Applications invited for posts of OUTPATIENT MEDICAL REGISTRAR and OUTPATIENT SURGICAL REGISTRAR (2 B1 appointments) for duty primarily at St. Helier Hospital but to be available, if required, for duty at other hospitals in the group. Details of the group will be supplied on application. Preference given to candidates holding a higher medical and surgical qualification respectively. Commencing salary, according to qualifications and experience, on scale £550–£50–£650–£75–£725 p.a., plus emoluments valued at £150 p.a. or cash in lieu. R practitioners eligible for H.M. Forces holding B1 post, not considered.

Applications, stating age, qualifications, and experience, with a copy of 2 recent testimonials and the name of 1 referee, should be sent by 1st February, 1949, to the Chief Administrative Officer/HMC, St. Helier Hospital, Carshalton, Surrey.

TORQUAY DISTRICT HOSPITAL MANAGEMENT COMMITTEE. Applications invited from registered medical practitioners, Male and Female, for posts at Torbay Hospital, Torquay (177 Beds):—

HOUSE PHYSICIAN (A), for duty 1st March, 1949.
HOUSE SURGEON (A), 27th February.
CASUALTY OFFICER (B2), with charge of cases admitted to Special Depts., 1st March.

Appointments for 6 months. Salaries: A posts £200 a year; B2 post £250 a year, 6 months' hospital experience necessary. Each appointment with full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. R practitioners eligible for H.M. Forces holding A post, considered for B2 appointment.

Applications to be sent to the Secretary, Torquay District Hospital Management Committee, 62/64, East-street, Newton Abbot, S. Devon.

THE ROBERT JONES AND AGNES HUNT ORTHOPÆDIC HOSPITAL, OSWESTRY. (479 Beds.) Required, SURGICAL OFFICER (resident). Salary £300 p.a., resident. Appointment in the first place for 6 months with possibility of an extension.

Applications, stating age, nationality, qualifications, &c., should be forwarded to the Acting Secretary before 31st January, 1949.

TILBURY HOSPITAL. South-East Essex Hospital Management COMMITTEE. Required, CASUALTY AND OUTPATIENTS OFFICER AND HOUSE SURGEON, Male or Female, to Gynæcological Dept. Salary £550 p.a., full residential emoluments. Appointment for 6 months in the first instance. Suitably qualified R practitioners holding B2 appointment invited to apply. R practitioners eligible for H.M. Forces holding B1 appointment, not considered.

Applications, stating age, qualifications, experience, and nationality, with 2 recent testimonials, to be sent to E. E. TAYLOR, Secretary, South-East Essex Hospital Management Committee, Stifford Long-lane, Grays, Essex, as soon as possible.

TILBURY HOSPITAL. South-East Essex Hospital Management COMMITTEE. Required, SENIOR RESIDENT SURGICAL OFFICER (B1), post vacant 31st January, 1949. Applicants should have held house appointments and have had surgical experience. Preference given to candidates holding the diploma of F.R.C.S. Salary £700 p.a., full residential emoluments. Suitably qualified registered practitioners holding B2 appointment and those holding B1 and ineligible for H.M. Forces invited to apply.

Applications, stating age, qualifications, with copies of 3 recent testimonials, should be sent immediately to ERNEST E. TAYLOR, Secretary, South-East Essex Hospital Management Committee, Thurrock Hospital, Grays.

TUNBRIDGE WELLS GROUP HOSPITAL MANAGEMENT COMMITTEE. TUNBRIDGE WELLS DISTRICT HOSPITAL, PEMBURY. (630 Beds.) Applications invited from suitably experienced medical practitioners for appointment of RESIDENT ANÆSTHETIST (B1). This post is recognised for the D.A., and is for 1 year. Salary £350 p.a., full residential emoluments. R practitioners holding B2 appointments, also those holding B1 and ineligible for service with H.M. Forces, may apply.

Applications, stating age, qualifications, and previous experience, should be sent to the Surgeon-Superintendent.

UNITED LEEDS HOSPITALS. The General Infirmary at Leeds. Applications invited from qualified OPHTHALMIC OPTICIANS for 3 full-time vacancies (non-resident) in the Dept. of Ophthalmology, which have arisen in consequence of developments under the National Health Service. Candidates should have had some previous experience and have had their qualifications approved by the Central Professional Committee of Ophthalmic and Dispensing Opticians. Salary payable in accordance with scales laid down by Ministry of Health and dependent on experience and qualifications.

Applications, with the names of 1–3 referees and details of previous experience, should be sent by 31st January, 1949, to—
S. CLAYTON FRYERS, Secretary to the Board of Governors.

UNITED BIRMINGHAM HOSPITALS. The Children's Hospital, KING EDWARD VII MEMORIAL, BIRMINGHAM, 16. Required, MEDICAL REGISTRAR (B1), non-resident, to take up duty as soon as possible. This Hospital is the teaching hospital of the University of Birmingham and the Birmingham Institute of Child Health, and provides facilities for experience in the clinical instruction of undergraduates and research in both curative and preventive pædiatrics. Applicants should have held resident appointments in a children's hospital or a children's department of a general hospital, and preference given to candidates holding the M.R.C.P. and/or D.C.H. Salary £650–£50–£750 p.a. if holding the M.R.C.P. Appointment for 1 year in the first instance, but is renewable for a further 2 years. Suitably qualified R practitioners holding B2 appointment invited to apply. R practitioners eligible for H.M. Forces holding B1 appointment, not considered.

Applications, stating age, nationality, qualifications, and experience, with the names of 2 referees to whom reference may be made, should be sent by 5th February, 1949, to—
12th January, 1949. N. R. WINWOOD, House Governor.

UNITED BIRMINGHAM HOSPITALS. The Children's Hospital, KING EDWARD VII MEMORIAL, BIRMINGHAM, 16. Required, HOUSE SURGEON (B2), Male or Female, to the E.N.T., Orthopædic, and Dental Depts., post vacant 1st February, 1949. R practitioners holding A posts may apply. Appointment recognised by the Conjoint Board for the D.L.O. Appointment tenable for 6 months. Salary £200 p.a. if the candidate has already held a 6 months' appointment, full residential emoluments.

Applications, stating age, nationality, qualifications with dates, and particulars of previous appointments, should be sent immediately to N. R. WINWOOD, House Governor.

13th January, 1949.

UNITED BIRMINGHAM HOSPITALS. The Birmingham Maternity Hospital. (Teaching Hospital of the University of Birmingham.) RESIDENT SURGICAL OFFICER (B1), vacant 1st March, 1949. Appointment for 12 months and holder eligible for reappointment. Post recognised for the examinations of the Royal College of Obstetricians and Gynæcologists. Applicants should have held house appointments and at least one previous obstetrical post. Preference given to candidates holding the M.R.C.O.G., or reading for this examination. Salary £350 p.a., full residential emoluments.

Applications, stating qualifications, experience, with 3 recent testimonials, should be sent immediately to BERNARD SYLVESTER, House Governor, Loveday-street, Birmingham, 4.

29th December, 1948.

UNITED BIRMINGHAM HOSPITALS. Applications invited for following resident appointments for 6 months from 1st February, 1949:—

HOUSE SURGEON to the Urological Dept.
HOUSE SURGEON to the Ophthalmic Dept.
HOUSE SURGEON to the Radiotherapy Dept.
3 HOUSE SURGEONS to the E.N.T. Dept.
HOUSE PHYSICIAN for duty at the Midland Nerve Hospital.

Salary in each case £150 p.a., full residential emoluments.

Applications, stating age, qualifications, and nationality, with copies of 3 recent testimonials, should be sent at once to—
G. HURFORD, Secretary, United Birmingham Hospitals.
The Queen Elizabeth Hospital, Edgbaston, Birmingham, 15.

UNITED SHEFFIELD HOSPITALS. The Board of Governors invites applications for appointment of ASSISTANT SURGEON at the Jessop Hospital for Women. The post is a part-time specialist appointment consisting of approximately 3 sessions per week, and is tenable in the first instance for 3 years, subject to renewal at the end of that period. Successful candidate required to engage solely in consulting practice in obstetrics and gynæcology and must be a Fellow of a Royal College of Surgeons and a Fellow or Member of the Royal College of Obstetricians and Gynæcologists. Remuneration in accordance with interim arrangements of the Ministry of Health, until such time as the Report of the Inter-Departmental Committee on the Remuneration of Consultants and Specialists is implemented.

Applications, stating age, particulars of qualifications, and naming 3 referees, must be received by undersigned on or before 7th February, 1949. Canvassing of members of the Board of Governors or the Advisory Appointments Committee will lead to disqualification.

JOSEPH GRIFFITH, Chief Administrative Officer.
The United Sheffield Hospitals, The Royal Hospital, Sheffield, 1.

UNITED SHEFFIELD HOSPITALS. The Royal Hospital Unit. Applications invited from registered medical practitioners, Male or Female, including medical officers recently demobilised from H.M. Forces, for post of SURGICAL FIRST ASSISTANT (B1). Preference given to candidates with experience in urological surgery and holding the Fellowship of one of the Royal Colleges of Surgeons. Salary £650 p.a., non-resident.

Applications, with copies of 3 recent testimonials, to be forwarded immediately to—
JOSEPH GRIFFITH, Chief Administrative Officer.
The United Sheffield Hospitals, The Royal Hospital, Sheffield, 1.

UNITED SHEFFIELD HOSPITALS. The Royal Hospital Unit. Required, HOUSE SURGEON (A), Male or Female, the work being mainly urological. Salary £150 p.a., full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for service with H.M. Forces appointment for 6 months; otherwise may be extended.

Applications and copy testimonials to be forwarded immediately to A. P. PRENTICE, Superintendent.

The Royal Hospital, Sheffield, 1.

UNITED SHEFFIELD HOSPITALS. The Royal Hospital Unit. Applications invited from registered medical practitioners, Male or Female, for appointments of (1) JUNIOR HOUSE SURGEON (A), and (2) JUNIOR HOUSE PHYSICIAN (A), of whose duties part will be in the Casualty Dept. Salary £150 p.a., full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioners liable for service with H.M. Forces appointments for 6 months; otherwise may be extended.

Applications and copy testimonials to be forwarded immediately to A. P. PRENTICE, Superintendent.

The Royal Hospital, Sheffield, 1.

UNITED SHEFFIELD HOSPITALS. Royal Infirmary, Sheffield. Applications invited from registered medical practitioners, Male and Female, for following posts, now vacant:—

HOUSE SURGEON (A) to the E.N.T. Dept.
CASUALTY HOUSE SURGEON (A).
HOUSE SURGEON (A) to the Neurosurgical Dept.

Salary £120 p.a., full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for service with H.M. Forces appointment for 6 months.

Applications should be sent forthwith to FRANK HART, Superintendent, Royal Infirmary, Sheffield, 6.

UNITED NEWCASTLE UPON TYNE HOSPITALS AND KING'S COLLEGE, UNIVERSITY OF DURHAM. Applications invited from registered medical practitioners for appointment of SECOND ASSISTANT to the Professorial Surgical Clinic. Applicants should possess a higher qualification in surgery. Appointment for 1 year in the first instance, and may be renewed. Salary £750–£800 p.a., non-resident.

Applications, giving age, nationality, experience, and qualifications, with the names and addresses of 3 referees, should be sent by 5th February, 1949, to—

A. W. SANDERSON, House Governor and Secretary.
Royal Victoria Infirmary, Newcastle upon Tyne, 1.

UNIVERSITY OF EDINBURGH. South-Eastern Regional HOSPITAL BOARD, SCOTLAND. ROYAL INFIRMARY OF EDINBURGH AND ASSOCIATED HOSPITALS BOARD OF MANAGEMENT. Applications invited for post of BACTERIOLOGIST to the Royal Infirmary, Edinburgh (approximately 1160 Beds). Successful applicant required to devote a part of his time to assisting in the undergraduate and postgradnate teaching of the University, and for this purpose will be appointed as a member of the teaching staff of the Dept. of Bacteriology of the University of Edinburgh. Appointment will be regarded as whole time and private practice will not be permitted. Salary offered £1500 p.a., subject to review in the light of any nationally agreed scale.

Applications, stating age, qualifications and dates thereof, particulars of previous experience and present appointment, with the names of 3 referees, should be forwarded by 7th February, 1949, to the Secretary, South-Eastern Regional Hospital Board (Scotland), 11, Drumsheugh-gardens, Edinburgh, from whom further particulars may be obtained.

UNIVERSITY OF MANCHESTER. Required, Lecturer in Experimental PHYSIOLOGY. Candidates must hold a registrable medical qualification. Salary from £600–£800 p.a., according to qualifications and experience.

Applications should be sent by 25th February, 1949, to the Registrar, The University, Manchester, 13, from whom further particulars may be obtained.

VICTORIA HOSPITAL, Barnet. Required, Resident Medical OFFICER (B2), Male or Female, to commence duty as soon as possible. This is a new appointment, and successful candidate will be the only Resident Medical Officer. Salary £250 p.a., full residential emoluments valued at £100 p.a. Appointment for 6 months if held by a practitioner liable under the National Service Acts.

Applications, stating age, qualifications with dates, and details of experience, with copies of 2 recent testimonials, should be sent to S. F. WILSHIRE, Secretary, Barnet Group Hospital Management Committee, 1, Wellhouse-lane, Barnet, Herts.

WAKEFIELD B GROUP HOSPITAL MANAGEMENT COMMITTEE NO. 10. PINDERFIELDS GENERAL HOSPITAL, WAKEFIELD. Applications invited from registered medical practitioners (Male or Female) for following appointments:—

HOUSE SURGEON (A), general surgical duties, now vacant.
HOUSE SURGEON (A), casualty duties, now vacant.
HOUSE SURGEON (A), orthopædic duties, vacant 1st March, 1949.
HOUSE SURGEON (B2), orthopædic duties, vacant 1st March, 1949.

Salary for A appointments £200 p.a., and for B2 £350 p.a., plus full residential emoluments. R practitioners, ineligible for service with H.M. Forces or under 25½ years not having held an A post, considered. Applicants for the B2 position may include R practitioners holding A post. To practitioners liable for service with H.M. Forces appointments for 6 months; otherwise not exceeding 1 year. The Hospital accommodates acute medical and surgical Service and civilian patients, and in addition to a Thoracic Surgical Unit has an Orthopædic Centre. Total Beds 711.

Applications, with full particulars, should be forwarded as soon as possible to G. L. BANNER, Secretary.
Victoria Chambers, Wood-street, Wakefield, January, 1949.

WINCHESTER GROUP HOSPITAL MANAGEMENT COMMITTEE. ROYAL HAMPSHIRE COUNTY HOSPITAL, WINCHESTER. (323 Beds.) Required, HOUSE SURGEON (A), Male or Female, post vacant 1st March. Salary £175 p.a., full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for service with H.M. Forces appointment for 6 months.

Applications, stating age, qualifications, and experience, with 2 testimonials, should be sent immediately to—

R. MORRISON SMITH, C.A., F.H.A.,
Superintendent and Secretary.

WINCHESTER GROUP HOSPITAL MANAGEMENT COMMITTEE. ROYAL HAMPSHIRE COUNTY HOSPITAL, WINCHESTER. (323 Beds.) Required, HOUSE SURGEON (A) to the Gynæcological Dept., post vacant 24th March. Salary £175 p.a., full residential emoluments.

Applications, stating age, qualifications, and experience, with 2 testimonials, should be sent immediately to—

R. MORRISON SMITH, C.A., F.H.A.,
Superintendent and Secretary.

WINCHESTER GROUP HOSPITAL MANAGEMENT COMMITTEE. ROYAL HAMPSHIRE COUNTY HOSPITAL, WINCHESTER. (323 Beds.) Required, JUNIOR CASUALTY OFFICER (A), Male or Female, post vacant 1st March, 1949. Salary £175 p.a., full residential emoluments. Appointee responsible for the immediate treatment of all outpatient fracture and accident cases under the supervision of the Orthopædic Registrar and will attend the daily and weekly fracture clinic held by the Registrar and Orthopædic Surgeon respectively. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered.

Applications, stating age, qualifications, and experience, with 2 testimonials, should be sent immediately to—

R. MORRISON SMITH, C.A., F.H.A.,
Superintendent and Secretary.

WINCHESTER GROUP HOSPITAL MANAGEMENT COMMITTEE. ROYAL HAMPSHIRE COUNTY HOSPITAL, WINCHESTER. (323 Beds.) Required, HOUSE SURGEON (A), Male or Female, post vacant 12th February, 1949. This post will include work in the Ophthalmic Dept. and General Surgery. Salary £175 p.a., full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered.

Applications, stating age, qualifications, and experience, with 2 testimonials, should be sent immediately to—

R. MORRISON SMITH, C.A., F.H.A.,
Superintendent and Secretary.

WIGAN. ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY, WIGAN. WIGAN AND LEIGH HOSPITAL MANAGEMENT COMMITTEE. Required, HOUSE SURGEON (A), Male or Female, post vacant 1st March, 1949. Salary £150 p.a., full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered.

Applications, stating age, qualifications with dates, and nationality, with copies of 3 recent testimonials, should be sent as soon as possible to—

T. W. HURST, General Superintendent and Secretary.

WIGAN. BILLINGE HOSPITAL, Orrell, near Wigan. (386 Beds.) WIGAN AND LEIGH HOSPITAL MANAGEMENT COMMITTEE. Required, RESIDENT MEDICAL OFFICER (B1). Commencing salary £472 10s. p.a., full residential emoluments. Applicants should have held house appointments and had considerable obstetric experience and preference given to candidates holding a postgraduate qualification. Appointment for 12 months in the first instance and terminable by 3 calendar months' notice on either side. It may be necessary for this officer to sleep away from the Hospital for the time being. R practitioners eligible for H.M. Forces holding B1 appointment, not considered.

Applications, stating age, qualifications with dates, details of present and previous appointments, with 3 recent testimonials, should be forwarded immediately to T. W. HURST, Secretary.
Knowsley House, Wigan-lane, Wigan, 6th December, 1948.

WELLHOUSE HOSPITAL, Barnet. (500 Beds.) Required, HOUSE SURGEON (A), Male or Female, to Obstetric and Gynæcological Dept. Appointment for 6 months. Salary £250 p.a., plus full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered.

Applications to the Secretary, Barnet Group Hospital Management Committee, 1, Wellhouse-lane, Barnet.

WEMBLEY HOSPITAL, Wembley, Middlesex. (Associated with Charing Cross Hospital.) Applications invited for appointment of PHYSICIAN in the Dept. of Physical Medicine, preferably with interest in rheumatology. The Physiotherapy Dept. is a well-equipped general department and includes a newly opened Rehabilitation Unit. Appointment requires attendance of 2 sessions weekly and remuneration will be in accordance with National Health Service Regulations.

Applications, giving age, qualifications, and experience, with copies of 3 recent testimonials, should reach undersigned by 7th February, 1949.

14th January, 1949. P. E. WINDO, Secretary.

WEMBLEY HOSPITAL. (Associated with Charing Cross Hospital.) Required, HOUSE PHYSICIAN AND CASUALTY OFFICER (A), for 6 months from 1st March, 1949. Salary £225 p.a., full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered.

Applications, with full details, should be sent as soon as possible to P. E. WINDO, Secretary.

WELSH REGIONAL HOSPITAL BOARD invite applications from registered medical practitioners for appointment of MEDICAL SUPERINTENDENT (non-resident) at the Infectious Diseases Hospital, Newport, which would also entail consulting work in this specialty in the Newport and East Monmouthshire and North Monmouthshire Hospital Management Committee groups. Post subject to National Health Service (Superannuation) Regulations, 1947. Interim salary £1350 p.a., inclusive of emoluments, subject to adjustment in the light of any agreed rates evolving from the Spens report on the remuneration of specialists. Successful candidate required to undergo a medical examination; possession of a higher qualification would be desirable.

Applications, with the names and addresses of 3 referees, should be forwarded by 5th February, 1949, to the Senior Administrative Medical Officer, Temple of Peace and Health, Cathays Park, Cardiff, from whom further information may be obtained. Canvassing will disqualify.

R. E. REESE, Secretary to the Board.

WEST WALES HOSPITAL MANAGEMENT COMMITTEE. PEMBROKE COUNTY WAR MEMORIAL HOSPITAL HAVERFORDWEST. (130 Beds.) Required, HOUSE SURGEON (A), Male, post now vacant. Salary £250 p.a., full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for service with H.M. Forces appointment for 6 months.

Applications in writing, stating age, qualifications with dates, and nationality, with copies of 3 testimonials, to be sent immediately to the Secretary-Superintendent, Pembroke County War Memorial Hospital, Haverfordwest.

WEST MIDDLESEX HOSPITAL, Isleworth. South-West MIDDLESEX HOSPITAL MANAGEMENT COMMITTEE. Required, SURGICAL REGISTRAR on the General Surgery Unit (100 Beds). Salary £600–£50–£700 p.a. non-resident, plus any temporary bonus (now £60 p.a.). Appointment subject to medical examination and normally for 1–2 years. R practitioners holding B2 post may apply. Ineligible unless rejected for H.M. Forces.

Applications, stating age, qualifications, experience, with copies of up to 3 recent testimonials, endorsed "Surgical Registrar, W.M.H.," to the Secretary of the Committee, 1, Churchfield-road, Ealing, W.13. Closing date 27th January, 1949.

WEST CORNWALL HOSPITAL MANAGEMENT COMMITTEE. CAMBORNE-REDRUTH MINERS' AND GENERAL HOSPITAL, REDRUTH, CORNWALL. Required, JUNIOR HOUSE SURGEON (A), Male or Female, to the Obstetric and Gynæcological Depts. at a salary of £200 p.a. Appointment for 3 months in the first instance and successful applicant will be expected to proceed to Senior House Surgeon (B2) for a further 3 months at a salary of £250 p.a. The Obstetric Dept. has 60 beds for abnormal midwifery. The Hospital has been recognised for the Membership of the Royal College of Obstetricians and Gynæcologists. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered.

Applications, with copies of 3 testimonials, should be sent to the Secretary, West Cornwall Hospital Management Committee, 4, St. Clement Vean, Truro, by 19th February, 1949.

WEST CORNWALL HOSPITAL MANAGEMENT COMMITTEE. ROYAL CORNWALL INFIRMARY, TRURO. (General Hospital, 280 Beds—8 Residents.) Required, CASUALTY HOUSE SURGEON (A), Male or Female, post vacant 30th March, 1949. Salary £200 p.a., full residential emoluments.

Applications, enclosing copies of 2 recent testimonials, should be sent to the Secretary, West Cornwall Hospital Management Committee, 4, St. Clement Vean, Truro, Cornwall.

WEST CORNWALL HOSPITAL MANAGEMENT COMMITTEE. ROYAL CORNWALL INFIRMARY, TRURO. (General Hospital, 280 Beds—8 Residents.) Required, RESIDENT ANÆSTHETIST (B2), Male or Female, post vacant 4th April, 1949. This Hospital is recognised for the D.A. Salary £250 p.a., full residential emoluments.

Applications, enclosing copies of 2 recent testimonials, should be sent to the Secretary, West Cornwall Hospital Management Committee, 4, St. Clement Vean, Truro, Cornwall.

WEST BROMWICH AND DISTRICT GENERAL HOSPITAL. (144 Beds.) WEST BROMWICH AND DISTRICT HOSPITALS MANAGEMENT COMMITTEE. Required, RESIDENT SURGICAL OFFICER (B1), post vacant 1st February, 1949. Applicants should have had considerable experience in surgical work. Salary £450, by annual increments of £50 to £550, plus residential emoluments (Flat if required). Hospital recognised for the F.R.C.S.

Applications, stating age, qualifications, experience, and the names of 2 referees, should be addressed to—

JOHN O. ROBINS, Secretary.

WEST SUFFOLK (GROUP NO. 3) HOSPITAL MANAGEMENT COMMITTEE. The following posts fall vacant early in February at the West Suffolk General Hospital, Bury St. Edmund's:—

HOUSE SURGEON (B2). Salary £250 p.a. Duties, obstetrics and gynæcology.

HOUSE SURGEON (A). Salary £200 p.a. Duties, casualty and ophthalmic.

For A appointment, R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. Appointment in each case is for 6 months initially.

Applications, stating age, nationality, with 3 testimonials, should be placed in an envelope endorsed "House Surgeon" and addressed to the Secretary, at 36, Mill-road, Bury St. Edmund's.

WHITE LODGE HOSPITAL, Newmarket, Suffolk. (200 Beds, expandable to 450.) Applications invited for following posts:—

HOUSE SURGEON (A) for general surgery, obstetrics, gynæcology, and E.N.T. and emergency anæsthetics.

HOUSE PHYSICIAN/ANÆSTHETIST (A), with opportunity for obstetrics.

Salary for each post £200 p.a., full residential emoluments. Appointments normally for 6 months. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered.

Applications to Medical Superintendent.

WARRINGTON AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE. WARRINGTON INFIRMARY AND DISPENSARY. Required, RESIDENT SURGICAL OFFICER (B1) for appointment vacant the end of February. Applicants should have held house appointments and have had surgical experience. Preference given to candidates holding the diploma of F.R.C.S. Salary £550 p.a., or if non-resident £650 p.a. Suitably qualified R practitioners holding B2 appointments and those holding B1 and ineligible for H.M. Forces are invited to apply.

Applications, stating age, qualifications, and experience, should be sent by 29th January, 1949, to HENRY L. BOOT, Secretary to the Committee, c/o General Hospital, Lovely-lane, Warrington.

WORTHING GROUP HOSPITAL MANAGEMENT COMMITTEE. SOUTHLANDS HOSPITAL, SHOREHAM-BY-SEA, SUSSEX. Required, RESIDENT HOUSE SURGEON (A) or (B2), Male, post vacant beginning of March. Appointment for 6 months. Salary £150 or £240 p.a., according to experience. Appointment subject to conditions of service under National Health Service Act. For an A post R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. This post is recognised by the Royal College for the Fellowship Examination.

Application forms should be obtained from, and returned as soon as possible to, the Medical Superintendent, Southlands Hospital. A. V. OAKTON, Secretary-Administrator.

WOLVERHAMPTON HOSPITAL MANAGEMENT COMMITTEE, GROUP NO. 16. THE ROYAL HOSPITAL, WOLVERHAMPTON. Required, RESIDENT SURGICAL OFFICER (B1), post vacant 1st March. Applicants should have held house appointments and had major surgical experience. Preference given to candidates holding diploma of F.R.C.S. Salary £350 p.a., or according to qualifications. Suitably qualified R practitioners holding B2 appointment invited to apply. R practitioners eligible for H.M. Forces holding B1 appointment, not considered.

Applications to W. COCKBURN, House Governor.

WOLVERHAMPTON HOSPITAL MANAGEMENT COMMITTEE. NO. 16. THE ROYAL HOSPITAL, WOLVERHAMPTON. Applications invited from registered medical practitioners for following resident appointments, vacant now:—

REGISTRAR (B1), Ear, Throat, and Nose Dept. Salary £550.

CASUALTY OFFICER (B2). Salary £350.

HOUSE SURGEON (A). Salary £200.

Applications, stating age, qualifications, experience, with copies of 3 testimonials, to be addressed to—

W. COCKBURN, House Governor.

Wolverhampton, 14th January, 1949.

WREXHAM. TREVALYN MANOR MATERNITY HOSPITAL, ROSSETT. (45 Beds.) WREXHAM HOSPITAL MANAGEMENT COMMITTEE. Required, OBSTETRIC HOUSE SURGEON (B2), preferably Female, with previous obstetric experience. Salary £300 p.a., by 1 increment of £50 to maximum of £350 p.a. after 6 months' satisfactory service, plus temporary cost-of-living bonus, full residential emoluments. Appointment will, in the first instance, be for 6 months. Successful applicant will act as deputy and assistant to the Resident Medical Officer.

Applications, stating age, experience, qualifications, and nationality, with copies of 2 recent testimonials, to be sent before 14th February, 1949, to the Secretary, Wrexham Hospital Management Committee, Emergency Hospital, Wrexham.

WRIGHTINGTON HOSPITAL MANAGEMENT COMMITTEE. Required, JUNIOR MEDICAL OFFICER (B2), Male or Female, at the Wrightington Hospital, Appley Bridge, near Wigan. (351 Beds—280 non-pulmonary tuberculosis: adults and children; 71 beds for pulmonary cases). The medical staff consists of: Medical Superintendent; 3 Assistants; 2 Consultant Orthopædic Surgeons; other Visiting Surgeons and Visiting Physicians. Unit for major thoracic surgery. Good facilities for reading for M.D. Salary £300 p.a., plus bonus, board, single quarters, and laundry, valued at £146. R practitioners holding A posts may apply, when appointments will be limited to 6 months; otherwise 1 year.

Applications to Dr. J. DONSON, Medical Superintendent, Wrightington Hospital, Appley Bridge, near Wigan, giving qualifications and names of 2 referees.

YORK COUNTY HOSPITAL. (268 Beds.) Required, Senior HOUSE SURGEON (B1), post vacant 7th February, 1949. Appointment for 12 months. Salary £350 p.a., full residential emoluments.

Applications, with 3 testimonials, should be sent to the General Superintendent, York County Hospital, immediately.

F. A. MILNES, Secretary to York A and Tadcaster Hospital Management Committee.

YORK COUNTY HOSPITAL. (268 Beds.) Required, Resident ANÆSTHETIST (B1), post vacant 26th February, 1949. Appointment for 12 months. Salary £350 p.a., full residential emoluments.

Applications should be sent to the General Superintendent, York County Hospital, by 28th January, 1949.

F. A. MILNES, Secretary to York A and Tadcaster Hospital Management Committee.

AUCKLAND HOSPITAL BOARD, New Zealand. Applications invited from registered medical practitioners of the British Empire of at least 10 years' standing, for position of MEDICAL SUPERINTENDENT, Auckland Hospital, New Zealand. Special importance will be attached to previous hospital administration experience, and the possession of a higher qualification. Salary £1525 p.a., free unfurnished house is provided in the Hospital grounds. Conditions of appointment, accompanying explanatory memorandum, and official form of application, may be obtained from the office of the High Commissioner for New Zealand, 415, The Strand, London, W.C.2.

Applications, endorsed on envelope "Medical Superintendent, Auckland Hospital" are to be addressed to the High Commissioner for New Zealand, 415, The Strand, London, and close at NOON on Friday, 18th February, 1949.

R. F. GALBRAITH, Secretary.

AUCKLAND HOSPITAL BOARD, New Zealand. Applications invited from qualified medical practitioners of the British Empire, of at least 7 years' standing for position of DIRECTOR of Laboratory Services, Board's Institutions, AND PATHOLOGIST-IN-CHARGE, Auckland Hospital. Applicants should preferably possess a higher medical qualification and should have wide experience in all branches of pathology and bacteriology. Appointee shall be registered in New Zealand before taking up duty. Salary £1525 p.a. living out. (Salary increments above this rate are being determined by the Advisory Committee set up under the provisions of the Hospital Board Employees' (Conditions of Employment) Regulations, 1942.)

Conditions of appointment and form of application may be obtained from the Office of the High Commissioner for New Zealand, 415, The Strand, London. Applications close with undersigned at NOON on Friday, 25th February, 1949.

R. F. GALBRAITH, Secretary.

THE OTAGO HOSPITAL BOARD. University of Otago and DUNEDIN HOSPITAL, NEW ZEALAND. DEPARTMENT OF ORTHOPÆDICS. Required, ASSISTANT ORTHOPÆDIC SURGEON at a salary of £400 p.a. In addition the University of Otago makes an allowance of £165 p.a. Travelling expenses up to a maximum of £400 for a married man and £200 for a single man paid after completion of 2 years' service. Successful applicant will require to have a higher degree in surgery. He will have the right of private practice. He will be required to assist the Orthopædic Surgeon in the Dunedin Hospital, Outpatients, and School of Physiotherapy. He will give lectures.

Applications, stating age, and experience, with testimonials, and a certificate of health, will be received by the Secretary, Otago Hospital Board, Dunedin, N.Z., until 10 o'clock A.M., 27th April, 1949.

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THE OTAGO HOSPITAL BOARD. University of Otago and DUNEDIN HOSPITAL, NEW ZEALAND. DEPARTMENT OF ORTHOPÆDICS. Required, VISITING ORTHOPÆDIC SURGEON at a salary of £600 p.a. The University of Otago makes an allowance of £275 in addition for teaching. Travelling expenses up to a maximum of £400 for a married man and £200 for a single man paid after completion of 2 years' service. Successful applicant will require to have a higher degree in surgery. He will have the right of private practice. He will have clinical control of the Orthopædic Department in Dunedin Hospital, Outpatients, and School of Physiotherapy. Under the general direction of the Professor of Surgery, he will give lectures and clinical instruction to medical students, nurses, and physiotherapy students.

Applications, stating age, and experience, with testimonials, and a certificate of health, will be received by the Secretary, Otago Hospital Board, Dunedin, N.Z., until 10 o'clock A.M., 27th April, 1949.

SUDAN GOVERNMENT. The Sudan Medical Service requires the services of a Male BACTERIOLOGIST, aged preferably under 38, for work in the Stack Laboratories, Khartoum. Salary offered will depend on the form of contract desired, age, qualifications, and experience, and will be in one of 3 scales having minima of £E720, £E840, and £E900, and maxima of £E1200, £E1400, and £E1500 respectively. In addition a cost-of-living allowance of from £E180–£E390 p.a. (according to the number of dependents) is at present payable. (£E1 = £1 0s. 6d.) Free passage on appointment. Strict medical examination. There is at present no income-tax in the Sudan.

Further information and application form may be obtained from the Sudan Agent in London, Wellington House, Buckingham-gate, London, S.W.1. Please mark envelopes "Bacteriologist."

PALMERSTON NORTH HOSPITAL BOARD, New Zealand. PALMERSTON NORTH HOSPITAL. Required, ASSISTANT PATHOLOGIST. Preference given to applicants with previous pathological experience. The Palmerston North Hospital is a general hospital of 380 Beds and the Laboratory is in the charge of a full-time Pathologist. In addition to pathology, the Laboratory includes bacteriological and biochemical sections. Salary £700(N.Z.)–£900(N.Z.) p.a., according to experience. The position is non-resident. Conditions and details of appointment are available from the High Commissioner for New Zealand, New Zealand House, 415, The Strand, London, W.C.2.

Applicants are required to furnish full particulars as to age, married condition, educational qualifications, and experience since qualifying, with copies of recent testimonials. Applications (by airmail) close 28th February, 1949, and should be addressed to Dr. T. H. PULLAR, M.R.C.P., Pathologist, Palmerston North Hospital, New Zealand.

HAREFIELD AND NORTHWOOD GROUP HOSPITAL MANAGEMENT COMMITTEE. Required, LOCUM HOUSE SURGEON (Female) in the Radium Therapy Dept. of the Marie Curie Hospital. Salary £150 p.a., full residential emoluments.

Applications, with testimonials, to be forwarded immediately to the Director, Marie Curie Hospital, 66, Fitzjohn's Avenue, London, N.W.3.

AGRICULTURAL RESEARCH COUNCIL FIELD STATION, COMPTON, near NEWBURY, BERKSHIRE. Applications invited for post of BIOCHEMIST at the Council's Field Station for the investigation of diseases of farm animals. Appointment will be in the P.S.O. grade with salary scale £910–£1177 p.a. and superannuation under the F.S.S.U. scheme. Commencing salary fixed within scale, according to experience, qualifications, and age. A house in Compton would be available at an agreed rent, inclusive of rates. Appointee would have the responsibility of establishing a section in biochemistry to collaborate with sections of bacteriology and pathology.

Letters of application giving full particulars, with the names of 3 referees, should be addressed to the Director, on or before 14th February.

TOTTENHAM GROUP HOSPITAL MANAGEMENT COMMITTEE. Applications invited for Part-time TECHNICIAN to the Electro-cardiographic Dept. of the Prince of Wales's General Hospital, Tottenham, N.15, to attend on Tuesdays and Fridays. Salary in accordance with the Joint Negotiated scale.

Applications should be sent to the Secretary, Tottenham Group Hospital Management Committee, The Green, Tottenham, N.15, by 8th February, 1949.

BIRMINGHAM. DUDLEY ROAD HOSPITAL. Required, ASSISTANT BIOCHEMIST. Candidates must hold a University Degree in Science, and preferably have had experience of hospital biochemistry. Commencing salary £510 p.a., rising by £25 p.a. to £610 p.a.

Applications to be sent in the first instance to the Secretary, The Birmingham (Dudley Road) Group of Hospitals, Dudley Road Hospital, Birmingham, 18.

ST. HELIER HOSPITAL, Carshalton, Surrey. (862 Beds.) There are vacancies in the Nursing School of this Hospital. Students enter in January, April, July, October, of each year. The Hospital is a modern one within easy reach of both London and the beauty spots of Surrey. The "block" system of training has been in operation since the opening of the Hospital, which is also recognised by the Central Midwives Board as a Part 1 Training School. Student Nurses are paid a training allowance of £200 for the first year, £210 for the second year plus £5 bonus after passing the Preliminary State Examination, and £225 for the third year. Of this £100 will be payable to the St. Helier Hospital for board and lodging. They will receive medical attention and the use of uniform. Fourth year nurses after State Registration become Staff Nurses, and are paid a Staff Nurse's salary, with medical attention, board, lodging, laundry, and indoor uniform.

Forms of application and further particulars may be obtained from Matron, who will be pleased to arrange interviews with girls who are interested and their parents.

Medical Controller, British Schering. Applications invited from members of the medical profession for appointment as Controller of all medical activities of the British Schering group of companies. The appointment involves advising Directorate regarding development of new products, arrangement of therapeutic trials, and responsibility for efficient organisation and operation of a department providing technical advice and service to research, production, and marketing sections of the organisation. No objection is raised to independent part-time hospital practice. Applications will be treated in confidence and should be addressed to the Managing Director, BRITISH SCHERING LIMITED, 167–169, Great Portland-street, London, W.1.

Medical Officer required for Middle East service with large industrial organisation; preference to those with overseas experience and some knowledge of tropical work. Salary (incremental) from £950, plus substantial allowances and free furnished quarters (messing). Biennial (paid) home leave. The service (subject to upper age limit of 34) is pensionable. Married applicants would be required to serve singly for first 2–3 years.—Write, quoting No. 247, to Box 2626, c/o CHARLES BARKER & SONS LTD., 31, Budge-row, London, E.C.4.

Dental Officers required to fill career appointments in medical establishment of large Middle East organisation. Preference to those with Service experience in that area and with some knowledge of Arabic. Married applicants must be prepared for initial 2–3 years' separation. Salary (incremental) from £900; plus allowances £140–£450, according to family circumstances; free furnished quarters/messing. Biennial (paid) home leave. Desirable age limit 34.—Write, with record of qualifications and practice, to No. 250, Box 2629, c/o CHARLES BARKER & SONS LTD., 31, Budge-row, London, E.C.4.

Industrial Medical Officer, part time. Group of chemical manufacturing companies wish to appoint a local practitioner as part time medical officer at Widnes, Lancs, works employing 600. Duties involving not less than 3 hours weekly will include advising Works Manager concerning working conditions, examination of new starters and those returning after sickness or accidents. Supervision of first-aid services and carrying out any special examinations which may be necessary. Salary £225 p.a.—Applications giving particulars, should be addressed to: Address, No. 231, THE LANCET Office, 7, Adam-street, Adelphi, London, W.C.2.

Sub-Editor.—Wanted, a medically qualified sub-editor to a medical journal. Applicants must have experience in this field. Part time or whole time. Salary according to experience and duties undertaken.—Apply: Address, No. 232, THE LANCET Office, 7, Adam-street, Adelphi, London, W.C.2.

Imperial Chemical industries Limited, Dyestuffs Division, require a Laboratory Technician with biological interests to assist in research on the chemotherapy of cancer. Previous laboratory experience essential. Intermediate B.Sc. or equivalent desirable. Applicants should be under age 30 years.—Written applications to Staff Department, Hexagon House, Blackley, Manchester, 9.

Required, by Research Department of Pharmaceutical Manufacturers, North of London, Laboratory Assistant or Technician with practical experience of pharmacological or physiological preparations.—Apply to: Address, No. 221, THE LANCET Office, 7, Adam-street, Adelphi, London, W.C.2.

Required for London, W.1, quick and accurate Typist with good knowledge of medical terms. Full or part time.—Apply, giving full details of previous experience: Address, No. 229, THE LANCET Office, 7, Adam-street, Adelphi, London, W.C.2.

Doctor requires Secretary at once; quick, accurate shorthand and typing essential. £5 10s. (Phone: LANgham 1851).

Palmers Green Freehold Residence. 7 rooms, bathroom, 2 w.c.'s, brick-built garage, conservatory, central heating. Price £5000. Used as nursing-home many years prior to war continuously to date.—NAYLOR, The Manor, Davies-street, W.1.

Clinical Pathology.—The Clinical Department of the Hosa Research Laboratories, Sunbury-on-Thames (Tel.: Sunbury 2300), is staffed and equipped to undertake clinical pathological work of all types, including hæmatology, bacteriology, biochemistry, histology, pregnancy tests, &c., for medical and dental practitioners and hospitals. Outfits of specimen containers are provided on request, and reports are normally sent within 24 hours of receipt of specimens. Full details, with scale of fees, on application to the Clinical Director.

Microscopes are still wanted for important educational and research work. Highest prices for good modern instruments. Send your equipment for valuation to: WALLACE HEATON LTD., 127, New Bond-street, London, W.1.

Card-index Cabinets for National Health Insurance. Single or multiple units.—Catalogue from D. MATTHEWS & SON LTD., Office Furnishers, 14/16, Manchester-street, Liverpool.

Applicants for posts, requiring testimonials copied or duplicated, should communicate with MANTON SECRETARIAL SERVICE LTD., 98, Victoria-street, S.W.1 (Phone: VICtoria 0141), who are specialists in this kind of work.

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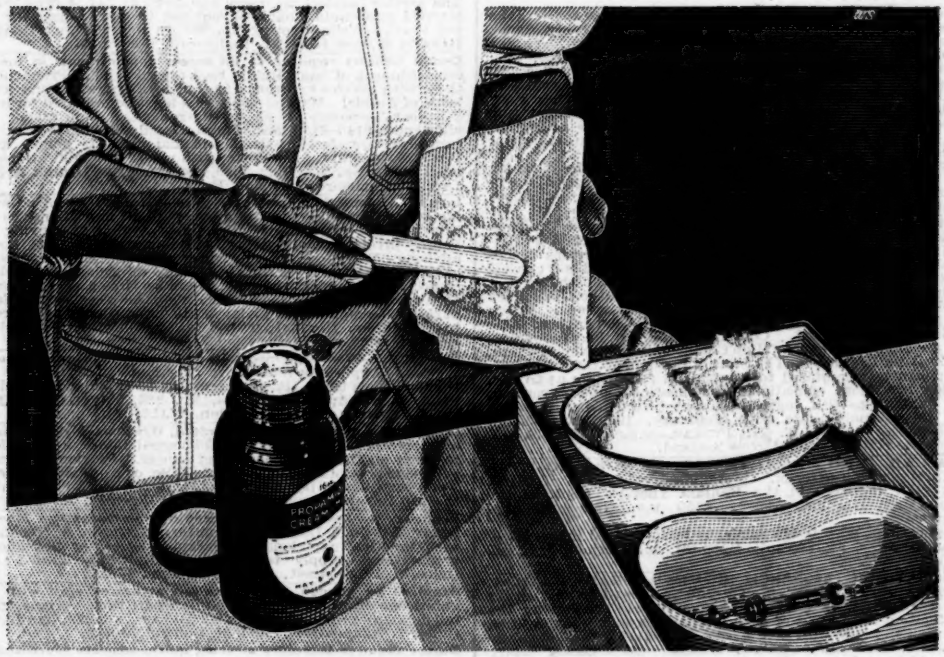

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